

GUJARAT BIOTECHNOLOGY UNIVERSITY

**BILL OF QUANTITIES**

Construction of Incite Building - Package C at GBU Gandhinagar Gujrat

**Architect:**

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## Abstract of Cost

### GBU Gujrat - BOQ for Construction of Incite Building - Package C

Sl. No	Description	Total Amount
1	Earth Work	5054810
2	Concrete Work	4094012
3	R.C.C. Work	241965509
4	Brick Work	23043493
5	Marble Work	12358900
6	Wood Work & PVC Work	35308872
7	Steel Work	37030498
8	Flooring	59446154
9	Roofing	31092790
10	Finishing	37551443
11	Aluminium Work	28602273
12	Waterproofing	11977038
13	Ext development	12888238
14	Plumbing Work	16233997
15	Fire Fighting Work	27957923
16	Electrical Work	135160881
17	HVAC Work	110119194
18	Integrate BMS	6200777
	<b>Total (Excluding GST But including Labour Cess)</b>	<b>836086802</b>
		<b>836086802</b>
	<b>in Crore</b>	<b>83.61</b>

Bill Of Quantities							
GBU Gujrat - BOQ for Construction of Incite Building - Package C							
S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
<b>Sub- Head - I , Earth Work</b>							
1	Clearing and grubbing road including uprooting rank vegetation grass bushes, shrubs, sapling and trees girth upto 300mm removal stumps of trees cut earlier and disposal of unserviceable (D) By mechanical means in area of thorny jungle.	1.00	Hect	34543.94	345.44	34889.38	34889.00
2	Excavation for foundation upto 1.5m depth including sorting out and stacking of useful materials, back filling in sides of sides of foundations etc. in layers not exceeding 20cm .in depth consolidating each deposited layer by ramming and watering etc and disposing off the excavated stuff upto any lead and lift. Dense or hard soft soil	7153.00	cum	174.00	1.74	175.74	1257068.00
3	Excavation for foundation for a depth from 1.5m to 3.0m depth including sorting out and stacking of useful materials back filling in sides of sides of foundations etc. in layers not exceeding 20cm .in depth consolidating each deposited layer by ramming and watering etc and disposing off the excavated stuff upto any lead . (D)Dense or hard soft soil . Quantity for excavation shall be paid based on actual dimensions in the drawings	6458.00	cum	186.58	1.87	188.45	1217010.00
4	Excavation for foundation for a depth from 3.0m to 5.0m depth including sorting out and stacking of useful materials back filling in sides of sides of foundations etc. in layers not exceeding 20cm .in depth consolidating each deposited layer by ramming and watering etc and disposing off the excavated stuff upto any lead . (D)Dense or hard soft soil . Quantity for excavation shall be paid based on actual dimensions in the drawings	7977.00	cum	198.31	1.98	200.29	1597713.00
5	Excavation for foundation for a depth from 5.0 m to 6.0m depth including sorting out and stacking of useful materials back filling in sides of sides of foundations etc. in layers not exceeding 20cm .in depth consolidating each deposited layer by ramming and watering etc and disposing off the excavated stuff upto any lead . (D)Dense or hard soft soil . Quantity for excavation shall be paid based on actual dimensions in the drawings	347.00	cum	219.21	2.19	221.40	76826.00
6	Filling in plinth with (good quality) sand under floors including watering, ramming, consolidating and dressing etc. complete.	643.00	cum	455.63	4.56	460.19	295902.00
7	Carring out plinth treatment to post construction / during construction by spraying chemical solution for termite control treatment including labour and material consistent with I.S.I specification. Using Chlordene and Chiorpurfiles 20 EC. As Per 6131_paret-II Concentration Weight one percent is recommended i.e one litre 20EC chemical emulsion with 19 liter give 1% concentration inclusive of one litre chemical emulsion appication at the rate of 5Litre chemical / Sqm of surface is recommended as per I.S. Plinth area only shall be measured for payment purpose.	5430.88	sqm	104.90	1.05	105.95	575402.00
<b>TOTAL</b>					0.00	0.00	<b>5054810.00</b>
<b>Sub - Head - II , Concrete Work</b>							
					0.00	0.00	
8	Providing & laying cement concrete 1:3:6 (1: cement: 3 coarse sand: 6 machine crust stone aggregates 40 mm nominal size) for all depths below and up to plinth level in foundations and curing etc. complete including cost of formwork in Footings & Ground, Plinth Beams & below Floors	64.00	cum	3084.72	30.85	3115.57	199396.00
9	Providing and laying cement concrete 1:4:8 (1- Cement : 4- coarsesand : 8- hand broken stone aggregates 40 mm nominal size) and curing complete including cost of formwork in (A) Foundation and Plinth	1160.00	cum	2762.39	27.62	2790.01	3236412.00
10	Providing and laying cement concrete 1:2:4 (1-Cement : 2- Coarse sand :4- graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth	16.00	cum	3661.30	36.61	3697.91	59167.00
11	Providing and laying damp proof course <b>100 mm thick</b> cement concrete 1:2:4 (1- Cement: 2coarse sand: 4stone aggregate 10 mm nominal size) and curing complete including providing and mixing water proofing material in cement concrete in mix proportion recommended by the manufacturers.	60.00	sqm	1249.77	12.50	1262.27	75736.00
12	Providing and filling in Aereated block bats (broken pieces ) in single or multiple layers in super structure , filling the joints with sand mortar ( not more than 20%)20mm thick cement sand mortar screed in proportion of 1:6 shall be laid asper drawing. Crushing strength of aerated concrete block /bats shall not be less than 40 kg/sqcm, minimum density in dry oven condition between 651 to 750 kg /cum, thermal conductivity shall not exceed 0.3W / mk, fire resistance 4 hours , in line and plumb , cleaning the surface with tools and tackles , at all level, all height , all floors including curing , scaffolding , complete as per specifications , drawings and directed by engineer in charge.	88.00	cum	1675.00	16.75	1691.75	148874.00
13	Making plinth protection 50mm thick of cement concrete 1:3:6 ( 1cement:3 coarse sand:6 graded stone aggregate 20mm nominal size over 75mm thick bed of dry brick ballast 40mm nominal size , well rammed and consolidated and grouted with fine sand , including necessary excavation, levelling and dressing & finishing the top smooth, including toe wall 230mm wide and 450mm deep on the edge to plinth protection with common burnt clay bricks including grouted with cement mortar 1:4 (1cement:4 fine sand)	560.00	sqm	662.00	6.62	668.62	374427.00
<b>TOTAL</b>							<b>4094012.00</b>
<b>Sub - Head - III , RCC Work</b>							
14	Providing TMT Bar FE 500D reinforcement for RCC work including bending, binding with G.I Binding wire and placing in position complete <b>at all heights, all lifts and all levels</b> as shown in the drawing	1871549.25	kg	79.31	0.79	80.10	149911095.00
15	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concnere work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Footing/Raft /grade slab upto plinth.	2983.00	cum	4737.79	47.38	4785.17	14274162.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
16	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Beam upto Plinth.	341.43	cum	6951.41	69.51	7020.92	2397156.00
17	Providing and laying in position machine batched and machine mixed design mix <b>M-450grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480 kg ) for Columns, pillars Post Struts upto Plinth.	170.08	cum	7715.38	77.15	7792.53	1325315.00
18	Providing and laying in position machine batched and machine mixed design mix <b>M-450grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480 kg ) for , Shear wall upto Plinth.	34.00	cum	6790.78	67.91	6858.69	233195.00
19	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 440 kg ) for basement Wall upto Plinth.	872.00	cum	6457.97	64.58	6522.55	5687664.00
20	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Basement Floor</b>	531.04	cum	6379.25	63.79	6443.04	3421524.00
21	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Ground Floor</b>	328.98	cum	6951.41	69.51	7020.92	2309721.00
22	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>First Floor</b>	322.90	cum	6986.17	69.86	7056.03	2278406.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
23	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Second Floor</b>	322.90	cum	7021.10	70.21	7091.31	2289798.00
24	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Third Floor</b>	322.90	cum	7056.21	70.56	7126.77	2301248.00
25	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Fourth Floor</b>	322.90	cum	7091.49	70.91	7162.40	2312753.00
26	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) , finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410kg ) for beams/Cantilevers Girders Bressumers at <b>Fifth Floor</b>	163.35	cum	7126.94	71.27	7198.21	1175828.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
27	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Sixth Floor</b>	163.35	cum	7162.58	71.63	7234.21	1181708.00
28	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>seventh Floor</b>	163.35	cum	7198.39	71.98	7270.37	1187615.00
29	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 475 kg ) for beams/Cantilevers Girders Bressumers at <b>Eighth Floor</b>	163.35	cum	7234.38	72.34	7306.72	1193553.00
30	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Ninth Floor</b>	163.35	cum	7270.56	72.71	7343.27	1199523.00
31	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for beams/Cantilevers Girders Bressumers at <b>Terrace Floor</b>	135.30	cum	7306.91	73.07	7379.98	998489.00
31.a	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Sill/ Lintels for all Floors.	81.00	cum	6770.88	67.71	6838.59	553926.00
31.b	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for RCC Band for all Floors.	515.00	cum	7484.81	74.85	7559.66	3893225.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
32	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Columns, pillars Post Struts at <b>Ground Floor</b>	156.04	cum	7715.38	77.15	7792.53	1215972.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
33	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Columns, pillars Post Struts at <b>First Floor</b>	143.89	cum	7753.96	77.54	7831.50	1126900.00
34	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Columns, pillars Post Struts at <b>Second Floor</b>	147.89	cum	7792.73	77.93	7870.66	1164018.00
35	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Columns, pillars Post Struts at <b>Third Floor</b>	143.89	cum	7831.69	78.32	7910.01	1138197.00
36	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Columns, pillars Post Struts at <b>Fourth Floor</b>	143.89	cum	7870.85	78.71	7949.56	1143888.00
37	Providing and laying in position machine batched and machine mixed design mix <b>M- 400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460 kg ) for Columns, pillars Post Struts at <b>Fifth Floor</b>	93.84	cum	7800.97	78.01	7878.98	739352.00
38	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460 kg ) for Columns, pillars Post Struts at <b>Sixth Floor</b>	93.84	cum	7839.97	78.40	7918.37	743048.00
39	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460 kg ) for Columns, pillars Post Struts at <b>Seventh Floor</b>	93.84	cum	7879.17	78.79	7957.96	746763.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
40	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Columns, pillars Post Struts at <b>Eighth Floor</b>	93.84	cum	7918.57	79.19	7997.76	750498.00
41	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460 kg ) for Columns, pillars Post Struts at <b>Ninth Floor</b>	93.84	cum	7958.16	79.58	8037.74	754249.00
42	Providing and laying in position machine batched and machine mixed design mix <b>M-400grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Columns, pillars Post Struts at <b>Terrace Floor</b>	46.92	cum	7997.95	79.98	8077.93	379010.00
43	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Wall / shear wall <b>Ground Floor</b>	23.10	cum	6790.78	67.91	6858.69	158436.00
44	Providing and laying in position machine batched and machine mixed design mix <b>M-450grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Wall / shear wall <b>First Floor</b>	23.10	cum	6824.73	68.25	6892.98	159228.00
45	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Wall / shear wall <b>Second Floor</b>	23.10	cum	6858.86	68.59	6927.45	160024.00
46	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Wall / shear wall <b>Third Floor</b>	23.10	cum	6893.15	68.93	6962.08	160824.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
47	Providing and laying in position machine batched and machine mixed design mix <b>M-450 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 480kg ) for Wall / shear wall <b>Fourth Floor</b>	23.10	cum	6927.62	69.28	6996.90	161628.00
48	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Wall / shear wall <b>Fifth Floor</b>	18.82	cum	6853.25	68.53	6921.78	130240.00
49	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Wall / shear wall <b>Sixth Floor</b>	18.82	cum	6887.52	68.88	6956.40	130892.00
50	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Wall / shear wall <b>Seventh Floor</b>	18.82	cum	6921.95	69.22	6991.17	131546.00
51	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Wall / shear wall <b>Eighth Floor</b>	18.82	cum	6956.56	69.57	7026.13	132204.00
52	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Wall / shear wall <b>Ninth Floor</b>	18.82	cum	6991.35	69.91	7061.26	132865.00
53	Providing and laying in position machine batched and machine mixed design mix <b>M-400 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 460kg ) for Wall / shear wall <b>Terrace Floor</b>	22.82	cum	7026.30	70.26	7096.56	161915.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
54	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering(height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Ground Floor</b>	458.48	cum	6379.25	63.79	6443.04	2954031.00
55	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering(height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>First Floor</b>	408.08	cum	6411.15	64.11	6475.26	2642450.00
56	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Second Floor</b>	414.33	cum	6443.20	64.43	6507.63	2696332.00
57	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Third Floor</b>	409.33	cum	6475.42	64.75	6540.17	2677114.00
58	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Fourth Floor</b>	409.33	cum	6507.80	65.08	6572.88	2690503.00
59	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Fifth Floor</b>	202.25	cum	6540.33	65.40	6605.73	1336027.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
60	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Sixth Floor</b>	202.25	cum	6573.04	65.73	6638.77	1342710.00
61	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Seventh Floor</b>	202.25	cum	6605.90	66.06	6671.96	1349422.00
62	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Eighth Floor</b>	202.25	cum	6638.93	66.39	6705.32	1356170.00
63	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Ninth Floor</b>	202.25	cum	6672.13	66.72	6738.85	1362951.00
64	Providing and laying in position machine batched and machine mixed design mix <b>M-300 grade</b> concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for any lead having continuous agitated mixer , manufactured as per mix design of specified grade for RCC work including pumping of RMC from transit mixer to site of laying including the cost of centering shuttering (height upto 4.2M) finishing and excluding reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 410 kg ) for Slab /Shelves/ landing balconies, access platform , staircase at <b>Terrace Floor</b>	120.68	cum	6705.49	67.05	6772.54	817286.00
65	Extra for Additional height of propping and centering where the height of propping and centering exceeds 4.2 m between supporting floor to ceiling upto 8.4 M.	3338.00	sqm	573.30	5.73	579.03	1932802.00
66	Providing and fixing in position Stainless steel Grade 304 plate-1.0 mm thick as per design for expansion joints. 200mm wide	638.00	metre	721.00	7.21	728.21	464598.00
67	Providing and fixing of <b>expansion joint system related with floor location</b> as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical location in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with a universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions.						
	The Self – centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in- Charge . (Material shall confirm to ASTM 6063.)						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Floor Joint of 100 mm gap	244.00	metre	5364.00	53.64	5417.64	1321904.00
68	Providing and fixing of <b>expansion joint system</b> related with <b>wall joint</b> (internal/ external) location as per drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221-02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063.)						
	Wall Joint of 100 mm gap	372.00	metre	4452.00	44.52	4496.52	1672705.00
69	Providing and <b>fixing of expansion joint system</b> of approved make and manufactures for <b>various roof locations</b> as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering arrangement support plates as per ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions.						
	The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resist damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement. Material shall confirm to ASTM 6063.						
	Roof Joint of 100 mm gap	22.00	metre	5022.00	50.22	5072.22	111589.00
70	Constructing cast-in situ RCC diaphragm wall by providing and laying machine batched, machine mixed, self compacting, ready mix reinforced cement concrete, trame controlled, of M 30 grade using minimum 400 kg. cement per cum of concrete including providing and mixing required admixtures in recommended proportions as per IS : 9103, as approved by the Engineer-in-charge, for achieving 150- 200mm slump, for diaphragm wall having thickness as per approved structural design not exceeding 600 mm, in pannels of required depth and lengths as per approved drawing, including constructing necessary guide walls as required and as specified including boring in all kinds of soils and rocks, including working in or under water and / or liquid mud, in foul conditions and pumping or bailing out of water and removing slush, including disposal of earth/ rock / slush etc. for all leads and all lifts, including preparing, providing and re-circulating bentonite slurry in the trench as and when required for all depths, including agitating bentonite slurry during trenching etc., providing and fixing stop ends or form tubes, upto the required depth of diaphragm wall including extracting the same after casting, including chipping off the bentonite adulterated concrete or unsound concrete up to the cut off level for obtaining the sound concrete, dressing undulations on the exposed face of diaphragm wall after excavation by chipping / chiseling etc. including filling the depression/ cavities with sound concrete etc. complete and as directed by the Engineer-in-charge, including providing recess for bearing plates and fixing insert boxes for inclined rock anchors etc. complete as per the specifications and approved design and as directed by the Engineer-in-charge, but excluding the cost of reinforcement and inserts.	207.00	cum	17168.00	171.68	17339.68	3589314.00
	<b>TOTAL</b>						<b>241965509.00</b>
	<b>Sub- Head IV - Brick Work</b>						
71	Brick work using common burnt clay building bricks having minimum crushing strength not less than 35 kg/ sq cm in foundation and plinth in cement mortar 1 : 6 (1 cement : 6 fine sand)	135.00	cum	3981.21	39.81	4021.02	542838.00
72	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification . <b>Ground Floor</b>	701.94	cum	4483.73	44.84	4528.57	3178803.00
73	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>1st Floor</b>	586.94	cum	4528.57	45.29	4573.86	2684600.00
74	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>2nd Floor</b>	586.94	cum	4573.85	45.74	4619.59	2711441.00
75	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>3rd Floor</b>	586.94	cum	4619.59	46.20	4665.79	2738557.00
76	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>4th Floor</b>	586.94	cum	4665.79	46.66	4712.45	2765944.00
77	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>5th Floor</b>	324.63	cum	4712.45	47.12	4759.57	1545116.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
78	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>6th Floor</b>	324.63	cum	4759.57	47.60	4807.17	1560569.00
79	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>7th Floor</b>	324.63	cum	4807.17	48.07	4855.24	1576174.00
80	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>8th Floor</b>	324.63	cum	4855.24	48.55	4903.79	1591935.00
81	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>9th Floor</b>	324.63	cum	4903.79	49.04	4952.83	1607855.00
82	Masonry work using Aerated light weight concrete block having crushing strength not less than 35 kg/sqcm for super structure above plinth level laid with approved block laying polymer modified adhesive mortar all complete as per direction of engineer in charge and Technical Specification. <b>Terrace</b>	25.60	cum	4952.83	49.53	5002.36	128060.00
83	Providing and fixing chicken wire mesh of gauge 0.18mm and 200 mm wide with necessary screws and nail at joints cracks of brick work R.C.C work as per drawing and specification and direction of Engineer incharge.	1876.80	sqm	217.14	2.17	219.31	411601.00
<b>TOTAL</b>					0.00	0.00	<b>23043493.00</b>
<b>Sub Head - V Marble/stone Work</b>					0.00	0.00	
84	Providing and fixing 18mm thick gang saw cut mirror polished pre-moulded and prepolished) Granite of any colour and shade as per selection of client for wall lining (veneer work), /bands 200mm wide backing filled with a grout of average 12 mm thick in polymer modified adhesive mortar including secured to the backing by means of cramps, hold fasteners ,copper pins 7.5 cm long 6 mm diameter for securing adjacent stones in stone wall lining in adhesive mortar including making the necessary chases complete in all respect.	2041.20	sqm	5689.00	56.89	5745.89	11728496.00
85	Providing and fixing 18mm thick gang saw cut mirror polished pre-moulded and prepolished) machine cut Granite of any colour and shade as per selection of client for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish, providing opening of required size & shape for wash basin/sink etc. complete at all levels.	85.00	sqm	3230.00	32.30	3262.30	277296.00
86	Design, Supply & Fixing Marble stone sculptures with Size 6ft x 3.5ft x 2ft . Providing & making individual pieces using laser cutting machine desired shape and profile. All components of origami figure to be developed in 3d model hollow from inside, then laser cut with proper dimensions and edges. Smoothing by using machine and tools to get edge finish. using necessary tools and machinery to get even and mirror like finishing in all respects. Designing, making and approval of shop drawings of the entire set good to be fabricated and assembled at site. Providing and finishing the sculptural Marble stones with mirror finish and balanced flat surface to be kept at the site..Hardware items and Footing Arrangement with plinth top Granite Finishing required in proper fixing of the mural as per direction of Engineer-in-charge	1	each	349612.00	3496.12	353108.12	353108.00
87	Item Deleted				0.00	0.00	
<b>TOTAL</b>					0.00	0.00	<b>12358900.00</b>
<b>Sub- Head - VI Wood Work &amp; PVC Work</b>					0.00	0.00	
88	Flush Door (Laminated ) Providing and fixing of 35mm solid cored flush door with 1mm thick laminate in approved shade as per selection on both side as shown in the drg. All exposed edges covered with wooden liping of min 4mm th duly painted and finished matching shade of laminate. Rate shall Include Frame of WPC 100x50 mm size comprising of virgin PVC polymer of K value 58- 60 (Suspension Grade), , SS Handle, Lock , Door Stopper, Door Closer, S.S. heavy duty hinges etc. all materials and labour etc. complete as per detail drawing and instruction of engineer-in charge and consultant.	2.00	sqm	5285.89	52.86	5338.75	10678.00
89	Flush Door (Laminated ) Providing and fixing of 35mm solid cored flush door with 1mm thick laminate in approved shade as per selection on both side as shown in the drg. All exposed edges covered with wooden liping of min 4mm th duly painted and finished matching shade of laminate. Rate shall Include SS Handle, Lock , Door Stopper, Door Closer, S.S. heavy duty hinges etc. all materials and labour etc. complete as per detail drawing and instruction of engineer-in charge and consultant.	1464.00	sqm	3631.91	36.32	3668.23	5370289.00
90	Providing and fixing M.S. grill of required pattern of windows etc. with M.S.. flats at required spacing and frame around square or round headed bolts and nuts or by screws.including applying a priming coat of red lead paint and two coats of oil painting etc complete (A) Plain grill	24949.00	kg	100.17	1.00	101.17	2524090.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
91	Restroom Cubical: providing and installing premium Series Restroom Cubicles with all necessary tools hardware, labour, as per the company specs. Providing & Fixing Cubicle partition system for toilet by using following Materials 12mm thick compact laminate with core of phenol resin treat papers with black color top layer treated with special melamine resin. Adjustable legs with bottom cap of SS 316, door lock with, gravity hinges with cover – combination of mild steel and Nylon PA6 And used following Accessories Accessories Include: 1. Aluminium Top Rail (Stainless Steel Grade 304 with Satin Finish) 2. SS Coat Hook with Door Stopper Option (Stainless Steel Grade 304 with Satin Finish) 3. SS Gravity Hinges (Stainless Steel Grade 304 with Satin Finish) 4. SS Latch cum Occupancy Indicator (Stainless Steel Grade 304 with Satin Finish) 5. SS "U" Channel (Stainless Steel Grade 304 with Satin Finish) 6. SS "F" Channel (Stainless Steel Grade 304 with Satin Finish) 7. SS Palm Design Adjustable Foot (Stainless Steel Grade 304 with Satin Finish) 8. SS Screws & Inserts (Stainless Steel Grade 304 with Satin Finish) 9. Rubber Lining for Door Stopper Brand.	430.00	sqm	8970.00	89.70	9059.70	3895671.00
92	Providing and fixing Hollow metal fire rated doors shutter with frame and hardware fittings etc complete as per specifications. Door frame shall be double rebate profile of minimum size 154mm X 77 mm made out of 1.60mm minimum thick galvanized steel sheet. The frames should be finished with Thermosetting Powder Coating in desired RAL Shade. All provision should be mortised, drilled and tapped for receiving appropriate hardware. Frames should be provided with back plate bracket and anchor fasteners for installation on a finished plastered masonry wall opening. Door leaf shall be minimum 49mm thick fully flush double skin door with or without vision lite. All doors NSD 12049 shall be factory prepped for receiving appropriate hardware and provided with necessary reinforcement for hinges, locks, and door closers. For pair of doors astragals has to be provided on the meeting stile for both active and inactive leaf.	401.00	sqm	10474.00	104.74	10578.74	4242075.00
93	Providing and fixing of 6mm thick decorative compact HPL laminate as per EN 438-6 Type EDS ( Exterior Durable Standard)/ EGS (External General Standard) external wall cladding using specially treated acrylic resins under high pressure and temperature and hardened into sheets, thus providing all weather protection and UV resistance on an aluminium powder coated sub structure of aluminium cube channel having thickness 50x25x1.6mm at corner and 75x25x1.6mm at junction of two panels complete as per manufacturers specifications and direction of engineer in charge.	590.00	sqm	4646.00	46.46	4692.46	2768551.00
94	Providing and fixing of approximately 8.0mm thick Laminated wooden flooring, classification of use 31/23 with a surface abrasion resistance of class AC3 (average 3800 cycles), impact resistance of 7.7 mm, resistance to cigarette burn with a rating of 4 (EN 438-2:05), swelling after 24 hrs in water of 8.22%, Modulus of rupture of 53.3 newton/mm <sup>2</sup> , Internal bond 1.78 newton/mm <sup>2</sup> , surface soundness 2.62 newton/mm <sup>2</sup> (EN 13329:2000) with a 0.2 mm thick wear layer on top of a High Density Fiber substrate core (density – 948.3 Kgs/M <sup>3</sup> ) of plank size 1285/1215 mm X 191/192 mm having locking arrangement (lock strength > 670 lbs/ft) with an underlayment made of natural colour foam, with accessories like End profile, Transition profile, reducer, Stair nosing etc. complete.	369.00	sqm	1400.00	14.00	1414.00	521766.00
95	Providing and fixing GI Gyp steel ultra frame work for wall panelling as per design drawing consisting of floor channel of size 50x32x32 x0.5mm thick at bottom and top fixed with 35 mm nylon sleeves and 35 mm screw. Further fixing GI stud 48x34x36x0.5 mm thick @600mm C/C vertically. The framework to be filled with 50mm 1000GSM non-woven thermal bonded polyester wadding ( Make Dupont/ mikasha/vibrant) held in position with 18 mm GI chicken mesh of 24SWG with drive all screws and oversize washers. Finally fixing over it horizontally 80x26x51x0.5 mm thick G.I. Gyp ceiling section placed @600mm C/C or wherever required as per design drawings. The frame to be fixed to the walls by means of angle holdfasts or cleats of required size complete with expandable anchor fasteners of 65x10mm dia fixed on each vertical member @1000mm C/C .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	2413.00	sqm	1640.00	16.40	1656.40	3996893.00
96	Providing & fixing at all heights on walls Wood based slats laminated panels having NRC upto 0.75 with lineal perforations . The size of lineal panels is 2400 x 128x 16mm with a pitch of 16 mm. The slats to have a groove of 2mm. The back panels to have circular perforations (8-10mm) dia randomly with a non woven fabric covering of 0.2mm. The lineal panels to have tongue & groove joints and fixing arrangements for seamless continuity . The panels to be fixed on the GI framework with impalers as per manufacturers recommendations ( The GI framework to be payable Separately ). The work to be done complete as per detail drawing and instruction of engineer-in charge and consultant.	2413.00	sqm	4293.00	42.93	4335.93	10462599.00
97	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings. all complete as per detail drawing and instruction of engineer-in charge and consultant.	336.00	sqm	4468.00	44.68	4512.68	1516260.00
	<b>TOTAL</b>				0.00	0.00	<b>35308872.00</b>
	<b>Sub- Head - VII , Steel Work</b>				0.00	0.00	

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
98	Providing, supplying, fixing, fabricating, erecting, aligning the structural steel like pivot ,tubular 'T','I' section, angle, plate ,beam, channel section, Bar , hollow box or Z purlins , for built up purlins, roof trusses, columns, side runners, tie beams, sag rods, base plates gusset plates, cap plates, bearing bracing, gantry girders, rails, require support,pipes, including all welded or bolted steel structures of various types with approved I.S.I.mark electrodes, bolts, anchor bolts including cost of thread, Anchor plate cleats etc. in RCC or masonry work, including cutting, bending, welding ,fixing, supplying , Fabricating Decorative fevisted section or any structured member required to complete the job for Trusses, Canopy, doors, Frame, Railing, Entrance gate, pergola, Decorative hanging light , for Electrical, water supply and HVAC structure New window, parking shed or space frame or any other required specified area as shown on drawing and detailed specification or as per design incl. three coats of approved brand primer and two coats of paints, necessary scaffolding, tools tolerance etc. complete as directed by Engineer In Charge. (Payment will be made for weight of metal used in the work) (Work for all the floors/all heights)	371820.81	kg	83.33	0.83	84.16	31292440.00
99	Design, manufacture and installation of 12 mm dpi system, a complete assembly of extruded Multi / Micro cellular profile UV extruded/protected polycarbonate panels incorporated into a complete system. The Polycarbonate panel system consists coextruded UV protected Multi / Micro cellular structure polycarbonate panel with width of 1040 mm to ensure best performance for wind uplift, vibration, oil canning and visual appearance. Panels shall be manufactured with vertical standing seam with standing seam height of 10 - 15mm at both sides of the panel. Panels shall be fixed on Purlins with the Z - Type Stainless Steel Fastener/retention clips and connectors. Each fastener shall be min 1mm thick of SS 304 Grade and secured to supporting frame/structure with min 3 numbers of self-drilling screws so that the Pull Out Load of Fastener exceeds 7000 N (7 KN) when tested as per ISO 6892: 1998 and IS 1608: 2005. Snap-on connectors to interlock the panels shall have 2-4 teeth grip-lock locking mechanism to ensure maximum uplift capability. Panel shall be fixed with additional End cap/Aluminum U / F Profile / Glazing Bar (mill finish) for ends as required. Panel shall be fixed over structural steel / MS purlin (paid separately) by trained & factory authorised installer under direct supervision to complete entire project installation according to the detail technical specifications as per approved architectural drawings all complete as per detail drawing and instruction of engineer-in charge and consultant.	82.00	sqm	2255.00	22.55	2277.55	186759.00
100	Providing and fixing stainless steel ( Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railingwith necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts,fasteners etc.	8482.00	kg	648.00	6.48	654.48	5551299.00
<b>TOTAL</b>					0.00	0.00	<b>37030498.00</b>
<b>Sub- Head - VIII Flooring</b>					0.00	0.00	
101	Providing and laying mirror polished Kota stone slab flooring over 20mm (Average ) thick base of cement mortar1:6 (1-cement:6-coarse sand)laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and mirror polishing etc.complete.(A) 25mm thick(work for all the floors)	1243.00	sqm	982.83	9.83	992.66	1233876.00
102	Providing and laying mirror polished kota stone slab 25mm thick in risers of steps,skirting Dado and pillars laid on10mm thick cement mortar 1:3 (1-Cement :3 coarses and) and jointed with gray cement slury mixed with pigment to match the shade of slab including rubbing and mirror polishing etc. complete.(work for all the floors)	168.00	sqm	1176.03	11.76	1187.79	199549.00
103	Providing & laying Light & Dark Colored Polisehd Granite slab (18mm thick) flooring For Staircase Tread,Landing over 20 mm (average) thick base of Cement Mortar (1-Cement : 6-Sand) using cementitious Adhesive Materials as per EIC instruction. Granite slab shall be laid and jointed with grey cement slurry. The size of granite should be in full leght of Riser and Tread as per design. Rates are including rubbing, polishing Moulding /Rounding of edges, making two lines of Grooves on each tread for antislleep, laying and removing of floor protection sheet etc. complete.(work for all the floors)	11333.00	sqm	2577.00	25.77	2602.77	29497192.00
104	Providing & laying Granite slab (18mm thick - river wash) in riser of steps dedo, Skirting and pillars laid 15 mm thick Cement Mortar 1:3 (1Cement:3 Coarse Sand) using cementitious Adhesive Materials as per EIC instruction. Granite slab shall be jointed with the Grey Cement Slurry Rates are including rubbing, polishing Moulding / Rounding of edges, laying and removing of floor protection sheet etc. complete.(work for all the floors)	1960.00	sqm	2577.00	25.77	2602.77	5101429.00
105	Providing and laying minimum 8-9 mm thick Double Charged Vitrified tiles Matt/Antiskid finish of size 600mmx600mm in floor / skirting (thickness to be specified by the manufacturer) with water absorption less than 0.08%and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS : 15477, in average 6 mm thickness, including grouting of joints The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.	4062.00	sqm	1421.00	14.21	1435.21	5829823.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
106	Providing and laying minimum 8-9 mm thick Double Charged Vitrified tiles Matt/Antiskid finish of size 800mmx800mm in floor / skirting (thickness to be specified by the manufacturer) with water absorption less than 0.08%and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS : 15477, in average 6 mm thickness, including grouting of joints The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.	3187.00	sqm	1571.00	15.71	1586.71	5056845.00
107	Providing and laying Ceramic tiles 6mm thick in flooring treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1- cement : 3-coarse sand ) finishing with flush pointing in white cement.	266.00	sqm	908.17	9.08	917.25	243989.00
108	Providing and laying Ceramic tiles 6mm thick in skirting risers of steps and dedo on 10mm thick cement plaster 1:3 (1-cement : 3- coarse sand) and jointed with white cement slurry	8357.00	sqm	1044.23	10.44	1054.67	8813877.00
109	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete. i)40 mm thick with 20 mm nominal size stone aggregate	250.00	sqm	515.00	5.15	520.15	130038.00
110	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid in panels and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in charge.Cement content considered in this item is @ 380 kg/cum.	322.00	cum	8243.00	82.43	8325.43	2680788.00
111	Providing & laying of ITF Certified Acrylic Synthetic sports surfaces including 7MM SBR with single component PU binder, manually laying on the existing concrete surface, sealer of PU material for sealing of vide in SBR layer, 2 layers of top coat ITF classified Techno Court, White Line marking complete as per detail drawing and instruction of engineer-in charge and consultant.	216.00	sqm	2227.32	22.27	2249.59	485911.00
112	Providing and fixing Glass mosaic tiles on finished plain floor surface and wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern complete as per detail drawing and instruction of engineer-in charge and consultant.	35.00	sqm	3265.00	32.65	3297.65	115418.00
113	Cutting holes in RCC wall , slab by diamond core cutting machine upto 150mm dia for passing drain pipes etc and repairing the hole after insertion of drain pipe etc with GP2 grout.	150	each	379.00	3.79	382.79	57419.00
<b>TOTAL</b>					0.00	0.00	<b>59446154.00</b>
<b>Sub- Head - IX Roofing</b>					0.00	0.00	
114	Providing and fixing eco-friendly light weight calcium silicate false ceiling tiles having Tegular edge & 15 mm Thick Densified edges on the Tile Periphery for Extra Strength The Light weight calcium silicate ceiling tiles shall have , light reflection 85% non-combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermalconductivity0.043° w/m KC.for the best thermal Insulation . The Light weight calcium Silicate tile shall be of approved texture Fine fissured/ Spintone /Cosmos having NRC value of 0.5 & Globe having NRC value of 0.75 NRC or equivalent of size 595 X 595 mm to be laid on true horizontal level suspended inter locking metal grid of hot dipped galvanized steelsections (galvanizing @120 grams per sqm including both side) consisting of main 'T'runner suitably spaced at joints to get required length and size of 24X38mm made from 0.30 mm thick (minimum) sheet, 1200mm centre to centre, and cross 'T' of size 24X28mm made out of 0.33mm (Minimum) sheet spaced 1200mm along space etc. An additional 4mm thick PVC strip of 40mm width is to be stuck on the interior side of the C channel using PVC solvent adhesive complete as per direction of Engineer in charge,manufactures.s at the back side so that 'L' shape outer PVC beading can be removed whenrequired for replacement of broken glass etc. complete as per direction of etc. complete as per direction of Engineer in charge and manufacture's specification.icationntre with 25mm long dry wall screws @ 230mm interval and laying 15mm thick Densified edges light weight calcium silicate ceiling tiles of approved texture (Fine Fissured /Cosmos /Spintone) in the grid including, cutting /making opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc., wherever required, Main 'T' runners to be suspended from ceiling using G.I. slotted cleats of size 25X35X1.6mm fixed to ceiling with 12.5mm dia and 50mm long dash fasteners, 4mm G.I. adjustable rods with galvanized steel level clips of size 85X30X0.8mm, spaced at 1200mm centre to centre long main 'T'bottom exposed with 24mm of all T-sections shall be pre-painted with polyester baked paint, for all heights, as per specifications, drawings and as directed by engineer-in charge.Note:- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening (cut outs) having area less than 0.30 sqm. The calcium silicate ceiling tiles shall have NRC. Value of 0.50 (Minimum) for Fine fissured/Spintone/Cosmos and 0.75 NRC for Globe, light reflection 85% non-combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity.0.043° w/m KC.for the best thermal Insulation	9415.80	sqm	1632.63	16.33	1648.96	15526278.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
115	Providing & fixing false ceiling at all height including providing & fixing of framework made of special section, power pressed from M.S. sheets and galvanised with zinc coating of 120 gms/ sqm (both side inclusive) as per IS : 277 and consisting of angle cleat of size 25mm wide x 1.6mm thick with flanges of 27mm and 37mm, at 1200mm c/c, one flange fixed to the ceiling with dash fastener 12.5mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25 x10 x0.50mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I channels 45 x15 x 0.90mm running at the spacing of 1200 mm c/c, to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26 mm each having lips of 10.5mm, at 450mm c/c, shall be fixed in a direction perpendicular to G.I intermediate channel with connecting clip made out of 2.64mm dia x 230mm long G.I wire at every junction, including fixing perimeter channels 0.50mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partitions with the help of Rawl plugs at 450mm centre, with 25mm long dry wall screws @ 230mm interval, including fixing of Calcium Silicate Board to ceiling section and perimeter channels with the help of dry wall screws of size 3.5 x25mm at 230mm c/c, including jointing & finishing to a flush finish of tapered and square edges of the board with recommended jointing compounds, jointing tapes, finishing with jointing compounds in three layers covering up to 150mm on both sides of joints and two coats of primer suitable for boards, all as per manufacture's specification and also including the cost of making opening for light fittings, grills, diffusers, cut outs made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in charge but excluding the cost of painting with: 8 mm thick Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process.	6277.20	sqm	1501.00	15.01	1516.01	9516298.00
116	Providing & fixing Armstrong Vertical Linear Baffle Ceiling made out of Aluminum Extrusion in Aluminum alloy grade 6063. The baffle blade shall be in size of 100x 50mm in WHITE/BLACK/WOOD GRAIN finish – Pradoo & Cabrueava. The baffle blade shall be suspended using Slotted U-profile at on-center spacing . Longer lengths of Baffle to be connected by Baffle Joiner and the ends to be fixed with End caps. Baffle Ceiling 200mm c/c.complete as per detail drawing and instruction of engineer-in charge and consultant.	1156.00	sqm	5085.00	50.85	5135.85	5937043.00
117	Providing and fixing mineral fibre false ceiling tiles at all heights of size 595X595mm of approved texture, design and pattern. The tiles should have Humidity Resistance (RH) of 99%, Light Reflectance ? 85%,Thermal Conductivity k = 0.052 - 0.057 w/m K, Fire Performance as per (BS 476 pt - 6 &7)in true horizontal level suspended on interlocking T-Grid of hot dipped all round galvanized iron section of 0.33 mm thick (galvanized @120 gsm) comprising of main T runners of 15x32 mm of length 3000 mm, cross T of size 15x32mm of length 1200 mm and secondary intermediate cross T of size 15x32 mm of length 600 mm to form grid module of size 600x600 mm suspended from ceiling using galvanized mild steel item (galvanised@80gsm) 50 mm long 8mm outer diameter M-6 dash fasteners, 6 mm diameter fully threaded hanger rod up to 1000 mm length and L-shape level adjuster of size 85x25x2 mm, spaced at 1200 mm centre to centre along main 'T'. The system should rest on periphery walls /partitions with the help of GI perimeter wall angle of size24x24X3000 mm made of 0.40 mm thick sheet, to be fixed to the wall with help of plastic rawl plug at 450 mm centre to centre & 40 mm long dry wall S.S. screws. The exposed bottom portion of all T-sections used in false ceiling support system shall be pre-painted with polyester baked paint, for all heights. The work shall be carried out as per specifications, drawings and as per directions of the engineer-in-charge. With 20 mm thick beveled tegular mineral fibre false ceiling tile (NRC 0.7)	50.00	sqm	2241.00	22.41	2263.41	113171.00
<b>TOTAL</b>					0.00	0.00	<b>31092790.00</b>
<b>Sub- Head - X Finishing</b>					0.00	0.00	
118	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Basement Floor</b>	5049.27	sqm	152.15	1.52	153.67	775921.00
119	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Ground Floor</b>	5542.24	sqm	159.76	1.60	161.36	894296.00
120	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>First Floor</b>	4873.24	sqm	167.75	1.68	169.43	825673.00
121	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Second Floor</b>	4573.24	sqm	176.14	1.76	177.90	813579.00
122	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Third Floor</b>	4605.68	sqm	184.95	1.85	186.80	860341.00
123	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>4th Floor</b>	4605.68	sqm	194.20	1.94	196.14	903358.00
124	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>5th Floor</b>	2487.50	sqm	203.91	2.04	205.95	512301.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
125	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>6th Floor</b>	2437.50	sqm	214.11	2.14	216.25	527109.00
126	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>7th Floor</b>	2437.50	sqm	224.82	2.25	227.07	553483.00
127	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>8th Floor</b>	2437.50	sqm	236.06	2.36	238.42	581149.00
128	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>9th Floor</b>	2437.50	sqm	247.86	2.48	250.34	610204.00
129	Providing 10 mm thick Cement Plaster in single coat on brick/concrete Ceiling for interior plastering finished even and smooth in(i) Cement mortar 1:3 (1-cement :3- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Terrace Floor</b>	189.00	sqm	260.25	2.60	262.85	49679.00
130	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Basement Floor</b>	2045.25	sqm	155.61	1.56	157.17	321452.00
131	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Ground Floor</b>	9030.66	sqm	163.39	1.63	165.02	1490240.00
132	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>First Floor</b>	7275.66	sqm	171.56	1.72	173.28	1260726.00
133	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Second Floor</b>	7275.66	sqm	180.14	1.80	181.94	1323734.00
134	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>3rd Floor</b>	7275.66	sqm	189.15	1.89	191.04	1389942.00
135	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>4th Floor</b>	7275.66	sqm	198.61	1.99	200.60	1459497.00
136	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>5th Floor</b>	4024.10	sqm	208.54	2.09	210.63	847597.00
137	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>6th Floor</b>	2012.05	sqm	218.97	2.19	221.16	444985.00
138	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>7th Floor</b>	2012.05	sqm	229.92	2.30	232.22	467239.00
139	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>8th Floor</b>	2012.05	sqm	241.42	2.41	243.83	490599.00
140	Providing 15 mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>9th Floor</b>	2012.05	sqm	253.49	2.53	256.02	515126.00
141	Providing 15mm thick Cement Plaster in single coat on brick/concrete wall/ for interior plastering finished even and smooth in(i) Cement mortar 1:4 (1-cement :4- sand) as required to receive specified architectural finish (like Grooves, pattern if any, drip mould etc.) to correct line, plumb .etc - <b>Terrace Floor</b>	128.00	sqm	266.16	2.66	268.82	34409.00
142	20mm thick Double coat Sand Faced / Mala cement plaster on Exterior walls at for various floors, levels and height as below and shown in the drawing consisting of 12mm thick backing coat of C.M. 1:3 (1-cement :3-sand) and 8mm thick finishing coat of C.M. 1:2 (1-cement :2-sand) etc. complete. as required to receive specified architectural finish like Vata, Grooves, pattern if any, drip mould etc. to correct line, level and plumb .	8735.55	sqm	297.68	2.98	300.66	2626430.00
143	Providing 20mm thick cement plaster in single coat on single wall for basement wall/ under plinth exterior surface in cement mortar 1:3 (1-cement :3sand) including providing and mixing water proofing material in cement mortar work in doses by weight of cement as per manufacturer specifications	100.00	sqm	226.92	2.27	229.19	22919.00
144	Applying two coats of putty & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.	92761.71	sqm	40.19	0.40	40.59	3765198.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount	
145	Wall painting (Three coats) with plastic emulsion paint of approved brand & manufacture on under coated wall surface to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.	92761.71	sqm	78.44	0.78	79.22	7348583.00	
146	Painting two coats (excluding priming coat) on new steel and other metal surface with synthetic enamel paint, brushing to give an even shade including cleaning the surface of all dirt, dust and other foreign matter.	482.00	sqm	64.66	0.65	65.31	31479.00	
147	Providing and applying acrylic aggregate textured non pigmented wall finish coating in 100% natural/ non pigmented Crushed Stone finish, dispersed in a pure acrylic binding medium, incorporating anti cracking, anti rusting, defoamers, antifungal compound followed by trowel/ spray gun application in approved shade and pattern or brick pattern with an average thickness of 1.75-2.0 mm, product finally sealed with protective top coat as per sample approved by Engineer-in-charge on the exterior walls of the building.	8476.00	sqm	678.00	6.78	684.78	5804195.00	
<b>TOTAL</b>						0.00	0.00	<b>37551443.00</b>
<b>Sub- Head - XI , Aluminium Work</b>						0.00	0.00	
148	Providing and fixing of Anodised Aluminium (Matt finish) frame work as per IS 1868 (1996)(Horizontal and verticals , Styles and rails, ball bearing) for Doors/ window/ventilation/alluminum partition with required Domal sections including fixing all items and hinged / pivoted arrangements for operation of shutters and labour cost for fixing of door fittings and locks including all items and contingencies described above complete (Aluminium beadings and glazing clips & section measured under this item only) NOTE : All fitting works shall be carried out as per I.S. specifications including cost of necessary rivets, screws, lugs, scaffolding, rubber gaskets etc., complete all generally as per drawings. The sizes of the components should confirm as per details in drawings. Providing and fixing at all heights / in all floors with all leads. Colour Anodised Aluminium doors / windows / partitions manufactured from best extruded Aluminium sections conforming to ISI cut to length, joints mitred and corners grinded with joints water proof the outer frame and shutter frame stiffened with corner angle and strips provided for in the frame for fixing the frame to R.C.C Columns / masonry/Granite Frame on sides, R.C.C lintels/Granite Frame on top and P.C.C sills or floor at bottom, the frame work fixed with standard approved fastenings all generally as per details shown in drawings and specification with all the sections pretreated for removal of any rust & scales and prevention of further rust/scale formation and coated with greasy materials for non-adherence of mortar or any other sticky materials and this coat to be removed after installations 1)Sheet metal screws, wool pile and aluminium angle corner cleat of required thickness and of full width, etc. for assembling the frame and shutter; 2)Glazing clips for receiving infill panel for Double Glazed Unit (DGU), any type of Glass, Compact Sheet, Louvers; 3) Best quality wool pile where ever shutter touches the frame; 4) Anchor fasteners for fixing the frame assembly to the RCC or Granite or masonry surfaces etc. complete. Note:-As per drawings and design supplied by architect and instruction given by authority and E.I.C.	18732.15	kg	415.00	4.15	419.15	7851581.00	
149	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side, having 12 mm air gap, including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete	1255.25	sqm	4193.00	41.93	4234.93	5315896.00	
150	Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.with Aluminium beading	1235.31	sqm	1030.00	10.30	1040.30	1285093.00	
151	Supply of Aluminium Ventilated Façade / Louver System of approved colour consisting of panel 50 mm wide x 50mm depth x 0.6mm thick panel length up to 5mtrs coil coated on a continuous paint line double baked and roll formed from enameled corrosion Resistance Aluminum Alloy AA3005 / AA5050 for higher strength and good Roll forming characteristics. Panels shall be mounted in a module of 100 mm on a mullion profile grooved (Slotted Fastening Profile) by means of Clamp, Locking Pop and Pop Rivet (Gap will be 50 mm between two panels). Slotted Fastening Profile shall be fixed at 150 mm from panel ends and at a distance of maximum 1200 mm center to center across the panel span and in any height and Slotted Fastening Profile shall be fixed to a suitable sub-structure by means of Square Brackets.Paint Finish:Panel shall be stove enamelled and finished with Luxacote, a patented special three layered coating system (consisting of first a conversion layer of thickness 800-2000mg/sq mtr, a polyurethane basecoat of 16-20 microns, and a special top coat of polyamide particles of 8-12 microns thick to provide excellent abrasion and damage resistance) in a continuous coil coating process of the approved colour on the exposed side and the reverse side with epoxy.	1545.00	sqm	5063.00	50.63	5113.63	7900558.00	
152	Item Deleted							
153	Designing, fabricating, testing, protection, installing and fixing in position semi(grid) unitized system of structural glazing with IGUs comprising of hermetically sealed 6-12-6 mm insulated glass (double Glazed) and Aluminium section complete as per specification	728.00	sqm	8499.00	84.99	8583.99	6249145.00	
<b>TOTAL</b>						0.00	0.00	<b>28602273.00</b>
<b>Sub- Head - XII , Water Proofing</b>						0.00	0.00	
154	Providing and laying of minimum 1.5 mm thick SBS modified self adhesive Samshield XL or equivalent waterproofing membrane topped with samshield HDPE valeron film, having tensile strength of L/T 3.5N/mm2 as per ASTM D412 and with minimum elongation L/T of 180% (as per ASTM D 412). The membrane shall have puncture resistance of >200 N (as per ASTM E154). Hydrostatic pressure > 60 m (6BAR) No leakage as per DIN 1048, including cleaning the surface,priming the surface with cold applied bituminous primer@4-6 sqm/litre, properly sealing the joints & maintaining 75 mm overlap between the membrane selvedge & 100 mm overlap on the end joints of the membrane over the slab etc. The system includes base preparation of cleaning, brushing and removal of flacky materials, grouting the porous area with cementitious grout, proper coving between slab and wall junctions. The waterproofing system should be applied directly by the manufacturer approved applicator with 10 years of warranty against leakage.	1713.00	sqm	630.00	6.30	636.30	1089982.00	

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
155	Supplying and laying composite 1.5mm thick, pre-applied, fully bonded HDPE membrane with double side adhesive which results in adhesive-to-adhesive bond - Prebond Pro or equivalent over P.C.C. conforming to BS 8102 & IS 16471:2017, requirements of UG waterproofing structures, with the turnkey execution to be done by the manufacturer through its in-house subsidiary execution company and with 10 years composite warranty against leakages, to be provided by the principal manufacturer. The system should be fully bonded to the Raft and consists of highly resilient HDPE film, self-adhesive polymer layer and weather protective layer. Typical application includes surface preparation by removing loose aggregates from PCC, foreign material, cleaning the surface etc., cutting membrane to convenient length, carefully aligning the membrane over blind concrete and rolling it out with print coated side facing up, laying adjacent sheets by keeping overlap of 75 mm, end overlaps to be treated using double sided tape and sealed tape etc. The membrane shall be continued over the vertical surface upto top of the Raft and fixed to shutter using double side adhesive tape. For application on confined retaining walls membrane shall be continued over the vertical surface and fixed by PVC roundels / shot guns at selvedge portion. The membrane shall have Tensile strength > 25 Mpa as per ASTM D 412 Modified, Elongation > 500% as per ASTM D 412 Modified, Puncture resistance > 1000 N as per ASTM E 154, Hydrostatic head resistance > 70m head of water as per ASTM D 5385, Low Temperature Flexibility: -25 deg C, Lap Peel Adhesion-880 N/m as per ASTM D1876, Peel Adhesion to Concrete > 1500 N/m as per ASTM D 903 Modified, UV Exposure > 45 Days.	4439.00	sqm	824.00	8.24	832.24	3694313.00
156	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C kitchen and the like consisting of : i) 1st course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. ii) 1st course of 20 mm cement plaster 1: 3 (1 cement :3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. iii) 1st course of applying blown or residual bitument applied hot at 1.7 kg. per sqm of area. iv) 4th course of 400 micron thick PVC sheet. ( Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitument @ 1.7 kg/sqm.)	755.00	sqm	646.00	6.46	652.46	492607.00
157	<b>Terrace Waterproofing Works</b> : Providing and applying single component PU based cold applied seamless waterproofing membrane over the primed surface with PU/Epoxy primer Layer on RCC mother slab, Insulation Layer: Spray applying an average minimum 65mm thick GRIHA enlisted CFC & HCFC free spray applied polyurethane foam and 2 coats of a single component PU based cold applied seamless waterproofing membrane over PU foam , 150 gsm Geotextile (non-woven polyester) over the entire membrane on horizontal areas maintaining proper overlaps and an avg of 100 mm thick M20 grade PP fiber reinforced concrete screed with Min. 75 mm thick at the rain water outlets, laid to a slope of 1 : 120, including saw cutting (approx 6mm W x 30mm D) at 3MX4M pannels within 24 hours of concrete placement and filling the groove with Expanded Polyethylene backer rod keeping the top approx 10 mm depth open and sealing the groove on the top after 28 days of concrete placement with PU sealant or equivalent, and making angle fillet of 100mmX100mm using M20 grade concrete at the corners, compaction , curing for 7 days etc complete	2721.00	Sqm	2438.00	24.38	2462.38	6700136.00
<b>TOTAL</b>					0.00	0.00	<b>11977038.00</b>
<b>Sub Head XIII - External development</b>					0.00	0.00	
158	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavation earth to an average of 22.5cm depth dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth lead upto any lead.	2969.00	sqm	184.00	1.84	185.84	551759.00
159	Construction of granular Sub base providing coarse graded material, spreading in uniform layers with motor grader on prepared surface mixing by mix in place method with front end loader at OMC and compacting with vibratory roller to achieve the desired density, complete as per specification and direction of engineer in charge- With material conforming to Grade - I (size range 75mm to 0.075mm ) having CBR Value -30.	625.00	cum	2336.00	23.36	2359.36	1474600.00
160	Construction of dry lean cement concrete sub base over a prepared sub-grade with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per specifications, cement content not to be less than 150 Kg/cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, for all leads & lifts, laid with a mechanical paver, compacting with 8-10 tonne vibratory roller, finishing and curing etc. complete as per direction of Engineer in- charge.	445.00	cum	3481.00	34.81	3515.81	1564535.00
161	Providing and fixing pre-cast Rubber Dye/ steel Dye interlocking concrete block 60mm thick with grade of concrete M300 pneumatic compressed/ vibrated mechanically and as per approved design Confirming to IS15658:2006 including 35mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC : SP 63-2018 etc. Complete.	2053.00	sqm	680.10	6.80	686.90	1410206.00
162	Providing and Fixing pre-cast concrete kerb stone of gray cement based concrete block 30cm length,30cm height and 15cm thick of M200 grade concret as per approved design and including excavation for fixing in proper line and level ,filling the joint with C:M 1:3(1cement:3 fine sand) etc complete.	1212.00	metre	376.43	3.76	380.19	460790.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
163	Providing and laying design mix cement concrete of M-30 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber finishing with required texture, including steel form work with sturdy M.S. channel sections, curing, making provision for contraction / expansion, construction & longitudinal joints (10 mm wide x 50 mm deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineer-in-charge (Item of joint fillers, sealants, dowel bars with sleeve/ tie bars to be paid separately). Cement content considered in M-30 is @ 410 kg/cum. Cement concrete manufactured in automatic batching plant (RMC plant) i/c transportation to site in transit mixer	436.00	cum	9181.00	91.81	9272.81	4042945.00
164	Parking Signs :-Providing and fixing sign boards made out of 2mm aluminium sheet; size 60 x 60cms. square plus 60 x 20cms rectangular additional plate as per the design of IRC-67-1977 pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge. (A) Engineer Grade (VR)	4	each	3795.75	37.96	3833.71	15335.00
165	Providing and fixing retro Reflective Engineering grade Board using C.R.C. (M.S.) Sheet 2mm, angle iron 75 x 75 x 6mm. Descaling and degreasing the board as per requirement using epoxy primer epoxy paint and carrying retro reflective process by screen painting as directed etc. complete including transporting and fixing in C.C. 1:4:8 with necessary excavation curing etc. complete as per I.R.C type design. (A) Engineer Grade	6	each	8646.75	86.47	8733.22	52399.00
166	Facility Informatory Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 80 x 60 cms rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ; reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T. Specifications; 3.6mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg. including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting	6	each	5848.00	58.48	5906.48	35439.00
167	Painting road surface marking with adequate nos of coats to give uniform finish with ready mixed road marking paint conforming to IS : 164, on bituminous surface in white/yellow shade, including cleaning the surface of all dirt, scales, oil, grease and foreign material etc. complete. New work (Two or more coats)	59.00	sqm	158.00	1.58	159.58	9415.00
168	Earthwork for embankment including breaking clods, dressing with all lead and lift and including watering rolling and consolidation of subgrade in layers at O.M.C. to required dry density including filling the depression which occur during the process using power roller 8T to 10T. (E) From Borrow area within all lead.	4500.30	cum	171.95	1.72	173.67	781567.00
169	Supplying and stacking at site dump manure from approved source, including carriage (manure measured in stacks will be reduced by 8% for payment) : Screened through sieve of I.S. designation 20mm	87.00	cum	254.15	2.54	256.69	22332.00
170	Fine dressing of the ground	2321.00	sqm	3.70	0.04	3.74	8681.00
171	Spreading of sludge, dump manure and / or good earth in required thickness as per direction of Engineer -in-charge (Cost of sludge, dump manure and / or good earth to be paid separately).	783.00	cum	52.35	0.52	52.87	41397.00
172	Mixing earth and sludge or manure in the required proportion specified or directed by the Engineer -in-charge.	783.00	cum	36.55	0.37	36.92	28908.00
173	Grassing with selection No.1 grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed -With grass Turf	2321.00	sqm	13.30	0.13	13.43	31171.00
174	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately).	50.00	cum	222.85	2.23	225.08	11254.00
175	Supplying & Stacking of Selection No.1 doob grass turf at site fresh & free from weeds having proper roots in green including loading, unloading, carriage and all taxes paid etc. and as per direction of Engineer - in - charge.	2321.00	sqm	50.80	0.51	51.31	119091.00
176	Demolition including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift. (i) R.C.C. work	675.00	cum	1047.38	10.47	1057.85	714049.00
177	Demolition of Brick work and stone masonry including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift. (ii) In Cement Mortar.	94.00	cum	544.95	5.45	550.40	51738.00
178	Dismantling tiled of stone floors laid in mortar including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift.	2374.00	sqm	47.25	0.47	47.72	113287.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
179	Dismantling steel work including distempering and stacking the materials with all lead and lift.	500.00	kg	3.63	0.04	3.67	1835.00
180	Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats architraves, holdfasts and other attachment etc. complete and stacking them within all lead and lift.(i) Not exceeding 3 Sq.M. in area.	2	each	185.85	1.86	187.71	375.00
181	Dismantling doors, windows, ventilators etc. (wood or steel) shutters including chowkhats architraves, holdfasts and other attachment etc. complete and stacking them within all lead and lift.(ii) Exceeding 3 Sq.M. in area.	2	each	185.85	1.86	187.71	375.00
182	Carefully removing the existing interlocking paver blocks of any thickness, including stacking the serviceable paver blocks at site; disposing of unserviceable materials; preparing the sub-base including dressing, leveling, compacting, and relaying/re-fixing the paver blocks in proper line and level with required compaction; filling joints with sand; and completing the work as directed by the Engineer-in-Charge.	2374.00	sqm	350.23	3.50	353.73	839755.00
183	Shifting relocating and re-routing of existing building services falling within the proposed building construction area, including Diesel Generator (DG) sets, Transformers, HT/LT panels,pump room equipment, UGT/Panel rooms, and other associated MEP services; complete in all respects. The work includes safe shutdown, disconnection, transportation, re-installation at the designated location, , supply of required hardware, supports, accessories, testing and commissioning, and restoration of affected surfaces; all as per direction of the Engineer-in-Charge	1	LS	500000.00	5000.00	505000.00	505000.00
<b>TOTAL</b>							<b>12888238.00</b>
<b>Sub Head – Plumbing Work</b>							
184	Providing and fixing white vitreous china wall mounting water closet of size 64X35.5X38.5 cm of approved shape including providing & fixing cistern with dual flush fitting, of flushing capacity 2 litre/ 4 litre (adjustable to 4 litre/8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete Make -20151-Hindware.	95	each	10629.00	106.29	10735.29	1019852.55
185	Providing and fixing water closet squatting Pan (Indian type W.C. Pan) size 580mm (Earthwork, bed concrete, foot rest and trap to be measured and paid for separately) (A) Vitreous China.(I) Long pattern = White colour	2	each	926.10	9.26	935.36	1870.72
186	Providing and fixing Handicap toilet consisting of 1 no. EWC with vitreous 10 litre capacity dual flushing system cistern with 1 no. hinged rail of 76 cm, 1 no. wash basin with all fittings and bottle trap, with one pair of mounting brackets and 4 nos. grab rails, 1 no. tower ring and 1 no. paper holder all complete as per the manufacturer's specification	11	each	39697.00	396.97	40093.97	441033.67
187	Providing and fixing toilet paper holder.(A) C.P. Brass	106	each	414.53	4.15	418.68	44380.08
188	Providing and fixing white vitreous china battery /Eiectice based infrared sensor operated urinal of approx. size 29X 32.5X 57.5 cm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge. ( cat No Hindware- 60021)	46	each	13457.00	134.57	13591.57	625212.22
189	Providing and fixing frameless urinal partition with 8 mm glass , full height upto 3 feet, 1 feet deep & SS fittings approved make all complete as directed by the Engineer-in-Charge.	21	each	4767.00	47.67	4814.67	101108.07
190	Providing and fixing white vitreous china wash basin under counter basin of size 630x450mm, with including 32 mm CP brass waste coupling, including painting of fittings and brackets, cutting and making good the walls wherever required all complete	107	each	3886.00	38.86	3924.86	419960.02
191	Providing and fixing CP brass auto closing system basin pillar tap of Jaquar PRS - 031 or Equivalent as approved by Engineer- In Charge	107	each	2032.00	20.32	2052.32	219598.24
192	Providing and fixing chromium plated, bottle trap with necessary couplings of approved quality for wash basin	107	each	292.87	2.93	295.80	31650.60
193	Providing and fixing Kitchen sink with C.I. or M.S. brackets, painted white including cutting holes in walls and making good the same but excluding fittings. (C) Vitreous China Sink.(i) 600mm x 450mm x 150mm size	6	each	2257.69	22.58	2280.27	13681.62
194	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete, including painting of fittings and brackets, cutting and making good the wall wherever required :						
	Size 600x450x200 mm	81	each	5525.93	55.26	5581.19	452076.39
195	Providing and fixing C.P. brass waste for washbasin or sink. (A) 32mmdia.	87	each	67.24	0.67	67.91	5908.17
196	Providing and fixing C.P. brass waste for washbasin or sink. (B) 40mm dia.	46	each	88.94	0.89	89.83	4132.18
197	Providing and fixing M.I. fisher union for washbasin or sink. (A) 32mm dia.	87	each	77.97	0.78	78.75	6851.25
198	Providing, laying and jointing in true line and level 110 diametre U.P.V.C (TypeB) conforming to IS13592-1992 with one end plain and othe rend socketed with rubbering, & fittings conforming to IS14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 110 mm diametre x149mm length x145mm heigh at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc.including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.	1326.00	Rmt	879.00	8.79	887.79	1177209.54
199	Providing, laying and jointing in true line and level 75 diametre U.P.V.C (TypeB) conforming to IS13592-1992 with one end plain and othe rend socketed with rubbering, & fittings conforming to IS14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 75 mm diametre x149mm length x145mm heigh at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc.including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.	324.00	Rmt	481.00	4.81	485.81	157402.44
200	Providing and fixing cast iron spigot and socket soil, waste and ventilating pipes of the following nominal size.(B) 75mm dia.	50.00	Rmt	732.09	7.32	739.41	36970.50
201	Providing and fixing cast iron spigot and socket soil, waste and ventilating pipes of the following nominal size.(C) 100mm dia.	100.00	Rmt	881.64	8.82	890.46	89046.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
202	Providing and fixing in position cowl went to pipes.(B) 75mm dia.	18	each	385.88	3.86	389.74	7015.32
203	Providing and fixing in position cowl went to pipes.(C) 100mm dia	27	each	496.90	4.97	501.87	13550.49
204	Providing and fixing SWR floor drain consisting of 100x63mm PVC elbow (grating and SWR pipe to be paid separately), complete as per instructions.(C) 100mm dia.	85	each	144.00	1.44	145.44	12362.40
205	Supply and fixing of SWR Plain / Multi Floor Trap of 'P' , 'S' or 'Q' type and 110 mm outlet complete, including cost of materials, labour, HOM of machinery & equipments with all lead and lifts, loading and unloading charges, transportation cost and conveyance, all other incidental charges etc. complete for successful completion of work as per specifications, and as directed by Engineer -in- Charge. 110mm inlet and 110 mm outlet	72.00	mtr	379.00	3.79	382.79	27560.88
206	Painting two coats (excluding priming coat) on external surface of new rain water, soil, waste and vent pipes and fittings with ready mixed bituminous brushing, black, anticorrosive to give an even shade including cleaning of all dirt, dust and other foreign matter. (B) 75mm dia.	200.00	Sqm	20.16	0.20	20.36	4072.00
207	Painting two coats (excluding priming coat) on external surface of new rain water, soil, waste and vent pipes and fittings with ready mixed bituminous brushing, black, anticorrosive to give an even shade including cleaning of all dirt, dust and other foreign matter. (C) 100mm dia.	240.00	Sqm	25.05	0.25	25.30	6072.00
208	Providing and fixing 125 mm square S/S grating (with or without hole)for floor or Nahani trap.	157	each	209.77	2.10	211.87	33263.59
209	Providing and fixing C.P soap dispenser with all complete as directed by the Engineer-in-Charge.	17	each	767.08	7.67	774.75	13170.75
210	Providing & fixing C.P. brass towel ring all complete with required accessories as directed by the Engineer-in-Charge. Towel Ring Round with Round Flange (Make -Jaquar Cat no- ACN-1121BN).	17	each	750.13	7.50	757.63	12879.71
211	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [D] 32mm.	107.00	Rmt	330.36	3.30	333.66	35701.62
212	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [E] 40mm.	11.50	Rmt	437.66	4.38	442.04	5083.46
213	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [F] 50mm.	72.00	Rmt	647.30	6.47	653.77	47071.44
214	Providing and fixing stainless steel hand dryer (Heavy Traffic ) all complete as directed by the Engineer-in-Charge.	17	each	15438.83	154.39	15593.22	265084.74
<b>Water Supply</b>							
215	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete.[A] 15 mm.	781.50	Rmt	165.21	1.65	166.86	130401.09
216	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [B] 20 mm.	444.00	Rmt	202.97	2.03	205.00	91020.00
217	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [C] 25 mm.	270.00	Rmt	247.25	2.47	249.72	67424.40
218	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [D] 32mm.	144.00	Rmt	330.36	3.30	333.66	48047.04
219	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [E] 40mm.	260.00	Rmt	437.66	4.38	442.04	114930.40
220	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc. complete. [F] 50mm.	265.00	Rmt	647.30	6.47	653.77	173249.05
221	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing.This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.						
<b>Internal work - Exposed on wall</b>							
a	65 mm dia nominal bore	145.00	metre	1491.00	14.91	1505.91	218356.95
b	80 mm dia nominal bore	20.00	metre	1893.00	18.93	1911.93	38238.60
222	Providing and fixing 600mm x 450mm bevelled edge mirror of superior glass mounted on 6mm thick A.C. sheet or plywood sheet and fixing to wooden pluge with C.P. brass screws and washers.	107	each	825.48	8.25	833.73	89209.11
223	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :						
223	Providing and fixing Gun metal check or non-return fullway wheel valve.(B) 20mm dia.	17	each	201.80	2.02	203.82	3464.94
224	Providing and fixing Gun metal check or non-return fullway wheel valve.(C) 25mm dia.	14	each	311.61	3.12	314.73	4406.22
225	Providing and fixing Gun metal check or non-return fullway wheel valve.(D) 32mm dia.	10	each	416.47	4.16	420.63	4206.30
226	Providing and fixing Gun metal check or non-return fullway wheel valve.(E) 40mm dia.	4	each	656.86	6.57	663.43	2653.72
227	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
a)	50 mm dia. nominal bore	3	each	861.43	8.61	870.04	2610.12
b)	65 mm dia. nominal bore	2	each	1461.78	14.62	1476.40	2952.80
228	Supply ,Erection , Testing & Commissioning of Automatic water level control panel & related accessories for pumping automation with consisting of automatic water level controller , level sensor with stainless steel probe, motorized butterfly valve, motorized valve controller with complete in all respect.						
	upto 50 mm dia. nominal bore	5	each	67496.00	674.96	68170.96	340854.80
229	Providing and fixing Stainless steel braided connection pipe with brass unions :45 cm length and 15 mm dia	303	each	238.00	2.38	240.38	72835.14
230	Providing and fixing C.P. Angle stop cock 15 mm Heavy duty with cap	304	each	504.00	5.04	509.04	154748.16
231	Providing and fixing hand held ablation fitting (health faucet) with one meter long flexible tube and wall hook, all complete approved engineer-in-charge	95	each	705.00	7.05	712.05	67644.75
232	Supply and fixing of 15mm CP brass 2 -Way Bib Cock with wall flange and suitable length CP brass extension pipe all of approved engineer-in-charge	97	each	1276.00	12.76	1288.76	125009.72
233	Providing and fixing Sink Cock with swinging casted spout ( cat. No. L.YR 38347 equivalent ) of approved quality	6	each	1202.00	12.02	1214.02	7284.12
234	Supply Installation Testing Commissioning of water Cooler with all required accessories to complete the job including appropriate Prefilter with its housing and Pipe at the inlet of water cooler appropriate Level Sensor for Water Cooler for switching UV Lamp as direction of Engineering in charge.The details as below: Minimum Storage Capacity 80L, Minimum Cooling Capacity 150L/Hr,No of faucets 01+01 nos ( 1 Normal,1 Cool),Front Tray drain pipe system, Hermetically sealed reciprocating compressor having R-134 a refrigerant,Cabinet Material Stainless steel AUG J1 grade,Stainless Steel Water Tank with float type sensor, Warranty on Cooler and other parts: Minimum 1 years,Supply Volatge-230 V AC,Make of the water Cooler- Voltas/ Blue Star/ Aquaguard / Usha After installation the agency should submit the test report of functioning of all its parts like Float Sensor,Cooling etc. The Unit and its accessories should be leakage free during the warranty period,any leakages found during warranty period agency should attend it on their own cost.	9	each	52268.00	522.68	52790.68	475116.12
235	Providing and fixing Stainless Steel pipe and fitting of grade 316L as per IS 6911:2017 and conforming to EN-10312 standards complete with press type fitting (fitting shall be paid for separately) i/c fixing of the pipe with clamps at 1.00 m spacing including cutting and making good the walls including testing of joints complete as per direction of Engineer-in-charge. (The pipe length inserted in the fitting shall not be measured for payment)						
	Internal work - Exposed on wall						
a	22 mm outer dia pipe	20.00	metre	719.88	7.20	727.08	14541.60
b	28 mm outer dia pipe	16.00	metre	897.05	8.97	906.02	14496.32
c	35 mm outer dia pipe	16.00	metre	1244.84	12.45	1257.29	20116.64
d	42 mm outer dia pipe	50.00	metre	1498.62	14.99	1513.61	75680.50
236	Providing and fixing Stainless Steel pipe and fitting of grade 316L as per IS 6911:2017 and conforming to EN-10312 standards complete with press type fitting (fitting shall be paid for separately) i/c fixing of the pipe with clamps at 1.00m spacing and also including cutting of chases and making good the walls including testing of joints complete as per direction of Engineer -in-charge. (The pipe length inserted in the fitting shall not be measured for payment)						
	Internal work - Concealed Pipe						
a	15 mm outer dia pipe	20.00	metre	639.37	6.39	645.76	12915.20
b	22 mm outer dia pipe	20.00	metre	863.36	8.63	871.99	17439.80
237	Providing and fixing required Stainless Steel Fitting of press fit design of grade 316L as per IS 6911:2017 and conforming to EN-10312 standards with V-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						0.00
	Coupling/Socket						0.00
a	For 22 mm outer dia pipe	10	each	303.11	3.03	306.14	3061.40
b	For 28 mm outer dia pipe	8	each	353.62	3.54	357.16	2857.28
c)	For 35 mm outer dia pipe	8	each	443.45	4.43	447.88	3583.04
d	For 42 mm outer dia pipe	25	each	600.60	6.01	606.61	15165.25
238	Providing and fixing required Stainless Steel Fitting of press fit design of grade 316L as per IS 6911:2017 and conforming to EN-10312 standards with V-profile and with O-ring sealing gasket of EPDM material of required dia as per dirction of Engineer-in-charge.						0.00
	Reducer						0.00
	For 22mm x 15 mm outer dia pipe	10	each	286.25	2.86	289.11	2891.10
239	Providing and fixing required Stainless Steel Fitting of press fit design of grade 316L as per IS 6911:2017 and conforming to EN-10312 standards with V-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						0.00
	Female Thread Connector/ Adapter						0.00
	For 15 mm outer dia x 1/2" mm nominal dia threaded	10	each	493.96	4.94	498.90	4989.00
240	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWVA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						0.00
	Valve Connector						0.00
a	For 22.22 mm outer dia x 15 mm nominal dia threaded	20	each	314.31	3.14	317.45	6349.00
b	For 22.22 mm outer dia x 20 mm nominal dia threaded	20	each	348.00	3.48	351.48	7029.60
c	For 28.58 mm outer dia x 25 mm nominal dia threaded	10	each	477.09	4.77	481.86	4818.60
	<b>Drainage</b>						
241	Supply and fixing HDPE double wall corrugated ( DWC ) I.S 16098 ( Part - 2 ) 3013 for soil / waste pipe under ground drainage system with jointed with rubber ring with good quality lubricant for fittings, inclusive of all necessary specials like bends, tees, offsets, junctions, etc complete.						
a	150 mm diameter	80.00	metre	496.00	4.96	500.96	40076.80
b	200 mm diameter	263.00	metre	665.00	6.65	671.65	176643.95

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
242	Providing and fixing S.W. gully trap with C.I. grating brick masonry chamber and water tight C.I. cover with frame of 300mm x 300mm size (inside) with standard weight.(i) Square mouth traps.(B) 150mm x 100mm size P or R type	15	Each	1234.57	12.35	1246.92	18703.80
243	Providing laying (to level or slopes) and jointing reinforced concrete Light duty non-pressure pipes I.S. class NP2 of the following internal diameter with collars and butt ends prepared for collar joints including testing of joints complete.(B) 150mm	115.00	metre	246.21	2.46	248.67	28597.05
244	Providing laying (to level or slopes) and jointing reinforced concrete Light duty non-pressure pipes I.S. class NP2 of the following internal diameter with collars and butt ends prepared for collar joints including testing of joints complete.(C) 250mm	245.00	metre	344.59	3.45	348.04	85269.80
245	Constructing Manhole with R.C.C. top slab in 1:2:4 mix (1- cement :2- coarse sand : 4-graded stone aggregate 20mm nominal size) foundation concrete 1:3:6 mix (1-cement : 3- coarse sand :6-Brick bats 40 + 50mm size) inside plastering 15mm thick with Cement Mortar 1:3 (1-Cement : 3- coarse sand) finished with a floating coat of neat cement and making channels in cement concrete 1:2:4 mix (1-Cement :2-Coarse sand :4-stone aggregate 20mm nominal size) finished smooth complete including curing and festing (i) Inside size 900mm x 1200mm and 1.5M. deep including C.I. cover with frame size 560mm diameter total weight of cover and frame to be not less than 128 kgs. (Wt. of cover 64 Kg. and Wt. of frame 64 Kg.)(A) With 230mm thick walls of brick msonry using brick having crushing strength not less than 35Kg. / Sq.cm. in Cement Mortar 1:5 (1- Cement: 5- Coarse sand) (1) A type depth 0.90 Metre for 150mm diameter sewer.	20	each	10920.76	109.21	11029.97	220599.40
246	Constructing Manhole with R.C.C. top slab in 1:2:4 mix (1-cement :2- coarse sand : 4-graded stone aggregate 20mm nominal size) foundation concrete 1:3:6 mix (1-cement : 3- coarse sand :6-Brick bats 40 + 50mm size) inside plastering 15mm thick with Cement Mortar 1:3 (1-Cement : 3- coarse sand) finished with a floating coat of neat cement and making channels in cement concrete 1:2:4 mix (1- Cement :2-Coarse sand :4- stone aggregate 20mm nominal size) finished smooth complete including curing and festing (i) Inside size 900mm x 1200mm and 1.5M. deep including C.I. cover with frame size 560mm diameter total weight of cover and frame to be not less than 128 kgs. (Wt. of cover 64 Kg. and Wt. of frame 64 Kg.)(A) With 230mm thick walls of brick msonry using brick having crushing strength not less than 35Kg. / Sq.cm. in Cement Mortar 1:5 (1- Cement: 5-Coarse sand) (2) B type depth 1.50 Metre for 150mm diameter sewer.	5	each	19139.00	191.39	19330.39	96651.95
247	Constructing Manhole with R.C.C. top slab in 1:2:4 mix (1-cement :2- coarse sand : 4-graded stone aggregate 20mm nominal size) foundation concrete 1:3:6 mix (1-cement : 3- coarse sand :6-Brick bats 40 + 50mm size) inside plastering 15mm thick with Cement Mortar 1:5 (1-Cement : 5- coarse sand) finished with a floating coat of neat cement and making channels in cement concrete 1:2:4 mix (1- Cement :2-Coarse sand :4- stone aggregate 20mm nominal size) finished smooth complete including curing and festing (i) Inside size 900mm x 1200mm and 1.5M. deep including C.I. cover with frame size 560mm diameter total weight of cover and frame to be not less than 128 kgs. (Wt. of cover 64 Kg. and Wt. of frame 64 Kg.)(A) With 230mm thick walls of brick msonry using brick having crushing strength not less than 35Kg. / Sq.cm. in Cement Mortar 1:5 (1- Cement: 5-Coarse sand) (3) C type depth 2.25 Metre for 150mm diameter sewer.	3	each	23209.00	232.09	23441.09	70323.27
248	(A) With 230mm thick walls of brick msonry using brick having crushing strength not less than 35Kg. / Sq.cm. in Cement Mortar 1:5 (1- Cement: 5- Coarse sand) (4) D type depth 3.15 Metre for 150mm diameter sewer	3	each	29952.74	299.53	30252.27	90756.81
249	(I) Extra rate for constructing B.B. masonry for every additional depth of 0.1M. or Part thereof over item No.24.27 (I) for depth from 0.9M to 1.5M.	10	each	517.78	5.18	522.96	5229.60
250	Providing and fixing cast iron steps of size 500mm x 150mm x 22.5mm and painting with two coats of Anti-corrosive paint etc. complete.	60	each	162.23	1.62	163.85	9831.00
251	Constructing Brick masonry road gully chamber 500mm x 450mm x 600mm including 500mm x 450mm C.I. horizontal grating wih frame complete.	26	each	1997.22	19.97	2017.19	52446.94
252	Constructing brick masonry chamber for underground C.I. Inspection chamber and bends with bricks having crushing strength not less than 35Kg/Cm2 in C.M. 1:5 C.I. cover with frame (Light duty) 455mm x 610mm intenal dimensions total weight of cover with frame to be not less than 38Kg. (Wt. of cover 23 Kg.) and Wt. of frame 15Kg. ) (R.C.C. top slab with 1:2:4 mix (1-cement :2- coarse sand :4-graded stone aggregate 20mm size) foundation concrete 1:5:10 inside plaster 15mm thick with cement mortar 1:3 finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete.(i) Inside dimensions 455mmx 610mm and 450mm deep for single pipe line.	10	each	2903.89	29.04	2932.93	29329.30
<b>External water supply</b>							
253	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main : 25 mm nominal bore	3	each	408.46	4.08	412.54	1237.62
254	Providing and fixing of cast iron sluice valves ( with cap ) complete with bolts, nuts, rubber insertions etc. ( the tail pieces if required will be paid separately): a 100 mm diameter Class II	2	each	4986.57	49.87	5036.44	10072.88
	b 150 mm diameter Class II	2	each	6135.59	61.36	6196.95	12393.90
255	Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertion etc. complete ( The tail pieces, tapers etc if required will be paid separately) : 100 mm dia	2	each	7461.82	74.62	7536.44	15072.88
256	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. a 65 mm dia nominal bore	35.00	meter	752.31	7.52	759.83	26594.05
	b 80 mm dia nominal bore	36.00	meter	874.06	8.74	882.80	31780.80

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
257	Providing and fixing HDPE pipes, PE-63 8kgf/cm <sup>2</sup> to IS confirming IS 4984-1995 having thermal stability for hot & cold water supply including all threaded fittings. This includes jointing of pipes & fittings with one step HDPE solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge.						
	25 mm nominal outer dia pipe	35.00	metre	137.00	1.37	138.37	4842.95
	32 mm nominal outer dia pipe	20.00	metre	164.00	1.64	165.64	3312.80
	50 mm nominal outer dia pipe	20.00	metre	267.00	2.67	269.67	5393.40
	75 mm nominal outer dia pipe	10.00	metre	484.00	4.84	488.84	4888.40
	100 mm nominal outer dia pipe	20.00	metre	925.00	9.25	934.25	18685.00
258	Constructing masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement :4 coarse sand) for stop cock, with C. I. surface box 100x100 x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 ( 1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size ) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design :						
	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	8	each	1671.92	16.72	1688.64	13509.12
	<b>Rain Water Harvesting &amp; Tubewell</b>						
259	Boring/drilling fore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ fore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level.						
	All types of soil						
	400 mm dia	115.00	metre	831.35	8.31	839.66	96560.90
260	Boring/drilling fore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ fore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre depth below ground level.						
	All types of soil						
	400 mm dia	310.00	metre	1039.18	10.39	1049.57	325366.70
261	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/plain ended casing pipes of required dia, conforming to IS: 4270, of reputed & approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer-in-charge.						
	200 mm nominal size dia having minimum wall thickness 5.40 mm	425.00	metre	2049.63	20.50	2070.13	879805.25
262	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/ plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, ncluding hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge.						
	200 mm nominal size dia	425.00	metre	2157.28	21.57	2178.85	926011.25
263	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	7.95	Cum	1266.82	12.67	1279.49	10169.55
264	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of foulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	7.95	Cum	1290.69	12.91	1303.60	10361.18
265	Supplying, filling, spreading & leveling coarse sand of sizerange 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.	7.95	Cum	1290.69	12.91	1303.60	10361.18
266	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	32.03	Cum	1698.69	16.99	1715.68	54949.80
267	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop fars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge finding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	1	each	1174.65	11.75	1186.40	1186.40
268	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	75	Hour	910.43	9.10	919.53	68964.75
269	Providing and fixing M.S. clamp of required dia to the top of casing/housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.						
	200 mm clamp	2	each	1924.53	19.25	1943.78	3887.56
270	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).						
	200 mm dia	2	each	300.05	3.00	303.05	606.10
	<b>STP / WATER TREATMENT EQUIPMENT &amp; SUPPLY PUMPS</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
271	Design, Construction ,Supplying, installing, testing & commissioning of Sewage Treatment Plant of 50m3/day based on MBR technology (Excluding excavation, back filling & disposal of surplus earth MS / Civil construction work) for the following duty: Nature of Sewage - Domestic Sewage from Kitchen, Pantry and human waste for STP and from lab fro ETP.						
	The sewage treatment plant shall include the following items: Screen Chamber,Oil & Grease Trap,Reaction Tank,Clear Water Tank,Sewage equalization tank/sump,,Aeration Tank,,Sludge Holding Tank,Air Blowers, Pump sets & other equipment including submersible pumps in the drainage sump,Effluent,Sludge,,Tertiary Treatment,Irrigation, Flushing & Soft water pumpsets,Inlet and Outlet connection to Treated water storage Tanks,Electrical Control Panel & Cabling, earthing etc.,Piping, valves and Instrumentation including level controllers, pressure gages, sensors, rotameters and indicating cum recording meters for incoming sewage and outgoing treated effluents etc.,Contractor shall ensure submission of detailed GA drawings (Plan & Section), P&I diagram, schematic diagram for the above said components and equipment and additional component if so required for the complete working of the STP /ETP. The following list of civil units shall be in Client's Scope. However the size and design of the civil constructions required shall be given and guaranteed for its efficacy by the contractor for which the contractor shall take full responsibility, Bar screen pit, Oil & Grease Chamber,Equalisation Tank,Sewage equalization tank/sump, Anoxic Tan,Aeration Tank,Sludge Holding Tank, Final Traeted water tank,Drain Sump for STP room,The STP shall consist of following units but not limited to these unit as may be required by the manufacturer's design.						
	The STP shall be designed based on the following parameters:						
	Daily average flow : 50 m3/Day						
	PH : 6.5 - 8.5						
	BOD5 : 50- 80 mg/l						
	S. Solids : 50- 80 mg/l						
	COD : 50- 80 mg/L						
	Oil & Grease : 20-30mg/L						
	ELECTRICAL INSTALLATION FOR SEWAGE TREATMENT PLANT Note : The mentioned ratings are for estimation purpose it may change as per final technical submittal. The Vendors are advised to quote as per actual. Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre shall be fabricated out of 14 gauge CRCA sheet steel in form in 3b formation with reinforcement of suitable size angle iron, channel 'T' sections irons and /or flats wherever necessary. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 Nos. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel before fabrication. Cadmium Plated hardware shall be used in fabrication of panels. Quoted rates shall inclusive of cables, cable trays, control cabling, earthing (in accordance to specification) with earthing from panel to each motor / equipment. MCC -1 (Sewage Treatment Plant) Incoming 100 amps TPN MCCB with the following accessories: - 1 No						
	STP Describe as above item with complete in all respect.	1	Job	4952567.00	49525.67	5002092.67	5002092.67
	<b>TOTAL</b>						<b>16233997.29</b>
	<b>Sub Head XX : Fire Fighting System</b>						
272	Supplying, installing, testing and commissioning of flooded Vertical Inline centrifugal pump set with stainless steel body , stainless steel impler and SS shaft capable to deliver of following capacity and head. given by TFC squirrels induction motor suitable for operation on 415 volt , 50 HZ AC power supply running speed 2900 RPM .The installation shall be complete with all necessary ancillaries & accessories including base plate , coupling guard etc complete as required.						
	Flow rate : 150 LPM						
	Head : 70 Mts						
	Required for : UG T ( Domestic Water & Flusing Water )	4	set	80557.98	805.58	81363.56	325454.24
273	Supply, installation, testing and commissioning of continuous duty submersible centrifugal non-clogging drainage pumps complete with 3 phase motor with all necessary protection and mechanical seal etc. complete with all ancillaries etc required.						
	Flow rate : 100 LPM						
	Head : 15 Mts						
	Solid Handling : 10 – 12 MM						
	Purpose : Drainage						
	MOC : CI	2	set	62930.02	629.30	63559.32	127118.64
274	Supply, installation, testing & commissioning of electric driven main fire pump suitable for automatic operation and consisting of following: complete in all respect as required.						
	Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal to ensure a minimum pressure of 3.5 kg/sp.cm. at highest and farthest outlet at specified flow of <b>2850 lpm at 88M.</b> head conforming to IS 1520.						
	Suitable HP SQ cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz. AC with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.						
	M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.						
	Suitable cement concrete foundation duly plastered with anti vibration pads.	2	Set	398884.04	3988.84	402872.88	805745.76
275	Supplying, Installation, Testing and Commissioning of diesel engine driven main fire pump suitable for automatic operation and consisting of following: complete in all respect as required.						
	Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal to ensure a minimum pressure of 3.5 kg/sp.cm. at highest and farthest outlet at specified flow of <b>2850 lpm at 88M.</b> head conforming to IS 1520.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant BS & IS standard complete with auto starting mechanism, 12 volts/24 Volts electric starting equipment, sealed maintenance free batteries, Diesel Tank, exhaust pipe extended upto 1 m. outside pump house duly insulated with 50 mm. thick glass wool with 1.0 mm. thick aluminium sheet cladding, residential silencer, instruments and protection as per specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required.						
	M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.						
	Suitable cement concrete foundation duly plastered with anti vibration pads.	1	Set	602657.33	6026.57	608683.90	608683.90
276	Supplying, Installation, Testing and Commissioning of <b>electric driven pressurisation pump</b> suitable for automatic operation and consisting of following: complete in all respect as required.						
	<b>Horizontal type, multistage, centrifugal pump</b> of cast iron body and bronze impeller with stainless steel shaft, mechanical seal and flow of <b>180 lpm. at 88M head</b> conforming to IS:1520.						
	Suitable HP SQ cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz. AC with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.						
	M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.						
	Suitable cement concrete foundation duly plastered with anti vibration pads.	2	Set	112578.45	1125.78	113704.23	227408.46
277	Fabrication, Supplying, Installation, Testing & Commissioning of electrical control panel of cubical construction, floor mounted type, fabricated out of 2mm thick CRCA sheet, compartmentalised with hinged lockable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, inter-connection, having switchgears and accessories mounting and internal wiring, earth terminals, numbering etc. complete in all respect, suitable for operation on 415 V, 3 phase, 50 HZ. AC supply with enclosure protection class IP 42 as required.						
	<b>COMMON PANEL IN FIRE PUMP HOUSE</b>						
	<b>INCOMER</b>						
	a) 630 Amps. TP & MCCB 50 KA						
	b) Voltmeter (0-500 Volts) with selector switch						
	c) Ameter (0-300 Amps.) with selector switch & CT's etc						
	d) Set of 3 Phase indicating lamp.						
	e) Set of Al. bus bar 500 Amps.						
	<b>OUTGOING : ( Electrical Fire / Sprinkler Pump )</b>						
	2 Nos Electrical Driven fire Pump. 250 Amps. TP& MCCB-35K with suitable HP fully automatic star/delta starter with over load protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation.						
	2 Nos Jockey pump. 100 Amps. TP & N MCCB-25 KA with suitable HP fully automatic star/delta starter with over load protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual/OFF operation.						
	<b>DIESEL ENGINE CONTROL</b>						
	Control for Diesel Engine comprising:-						
	Auto/Manual selector switch & 3 attempt starting device, timers and relays as required, push buttons, start/stop in manual mode.						
	Indication lamp for High/Low Lub. Oil pressure, High Water Temp. and Engine ON indication.						
	Battery charger suitable for 12 V/24V DC with boost and tickle selector switch, 0-15 V/ 0-30 V Dcvolt merer, 0-20A DC Ammeter.						
	All standard relays and accessories for automatic operation of diesel engine.						
	<b>SYSTEM CONTROLLER</b>						
278	Designing, Supply, Installation, Testing and Commissioning of system controller to control operation of Main Electric Fire Pump, Diesel Pump, Pressurisation Pump, in sequence as per specification consisting of relays, times, sensors, annunciation window for fault indication, complete as per specification.	1	Set	393980.53	3939.81	397920.34	397920.34
	Suitable cement concrete foundation duly plastered with anti vibration pads.						
279	Supplying and making <b>end termination</b> with brass <b>Compression Gland &amp; Al.lugs</b> for following sizes of PVC insulated, PVC sheathed/XLPE Al.conductor cables of 1.1 KV grade as required						
	3.5x300 sq.mm (3½ X 300 sq. mm (70mm))	2	Set	1120.99	11.21	1132.20	2264.40
	3.5x50 sq.mm (3½ X 50 sq. mm (35mm) )	2	Set	406.11	4.06	410.17	820.34
	4x25 sq.mm (4 X 25 sq. mm (28mm) )	12	Set	312.97	3.13	316.10	3793.20
	3x120 sq.mm (3 X 120 sq. mm (45mm))	8	Set	582.31	5.82	588.13	4705.04
280	Supplying and installing following size of perforated painted with powder coating <b>M.S. cable trays</b> with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc. as required.						
	150 mm width x 50mm depth x 1.6 mm thickness.	15.00	Meter	575.60	5.76	581.36	8720.40
281	Supplying & laying one number XLPE insulated PVC sheathed Aluminium Conductor <b>armoured UG cable</b> of 1.1 KV grade Conforming to IS 7098/1988 with upto date ammendment of following size in the existing RCC/HUME/ METAL /GI /Cl /Stoneware/DWC pipe/ masonry Open Duct/ cable tray/ open in air etc. as required.						
	4 core, 25 sq.mm. Aluminium Armoured	120.00	Meter	384.00	3.84	387.84	46540.80
	3.5 core, 50 sq.mm. Aluminium Armoured	100.00	Meter	576.00	5.76	581.76	58176.00
	3 core, 120 sq.mm. Aluminium Armoured	50.00	Meter	1006.00	10.06	1016.06	50803.00
	3.5 core, 300 sq.mm. Aluminium Armoured	75.00	Meter	2723.00	27.23	2750.23	206267.25
282	Earthing with <b>GI Earth plate</b> 600 mm x 600 mm x 6 mm th.including accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe with charcoal or coke and salt complete as required.	2	Set	7007.05	70.07	7077.12	14154.24
283	Providing & fixing 25 mm x 5 mm <b>G.I. Strip</b> in 40 mm dia GI pipe from earth electrode including connections with GI nut, bolt, spring, washer excavation and re-filling etc. as required.	75.00	metre	633.50	6.33	639.83	47987.25
284	Providing & fixing 25 mm x 5 mm <b>G.I. Strip</b> in on surface or in recess for connections etc as required.	50.00	metre	240.81	2.41	243.22	12161.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
285	Providing and fixing 6 SWG dia G.I wire on surface or in recess for loop earthing as required.	100.00	metre	70.48	0.70	71.18	7118.00
286	Supplying and installing following size of perforated painted with powder coating <b>M.S. cable trays</b> with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc. as required.						
	300 mm (W) x 50 mm (D) x 1.6 mm (T)	50.00	metre	650.28	6.50	656.78	32839.00
287	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including excavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required						0.00
	150 mm dia	800.80	metre	3191.81	31.92	3223.73	2581562.98
	100 mm dia	60.50	metre	2134.00	21.34	2155.34	130398.07
	80 mm dia	86.25	metre	1942.00	19.42	1961.42	169172.48
288	Providing, laying, testing & commissioning of ' <b>C' class heavy duty MS pipe</b> conforming to IS 3589 and 1239 including fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc., fixing the pipe on the wall/ceiling with suitable clamps and painting with two or more coats of synthetic enamel paint of required shade complete as required.						0.00
	200 mm dia	27.50	metre	5554.62	55.55	5610.17	154279.68
	150 mm dia	320.76	metre	3607.15	36.07	3643.22	1168599.25
	100 mm dia	893.86	metre	2581.81	25.82	2607.63	2330856.15
	80 mm dia	1032.46	metre	1910.56	19.11	1929.67	1992307.09
	65 mm dia	997.70	metre	1640.38	16.40	1656.78	1652969.41
	50 mm dia	1342.00	metre	1306.43	13.06	1319.49	1770755.58
	40mm dia	1435.50	metre	1056.39	10.56	1066.95	1531606.73
	32 mm dia	1560.90	metre	871.79	8.72	880.51	1374388.06
	25 mm dia	4785.00	metre	771.94	7.72	779.66	3730673.10
289	Supplying and fixing single headed internal hydrant valve with instantaneous Gun metal couplings of 63mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type-A) with blank Gunmetal cap and chain as required	31	each	6887.06	68.87	6955.93	215633.83
290	Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Gun metal coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal cap and chain as required.	7	each	6887.06	68.87	6955.93	48691.51
291	Supplying, fixing, testing and commissioning of following size butterfly valve (manual) with CI body SS disc nitrile sheet & O-ring & PN 1.6 pressure rating as specified.						
	50 mm dia	8	each	3451.92	34.52	3486.44	27891.52
	80 mm dia	9	each	4536.00	45.36	4581.36	41232.24
	100 mm dia	34	each	6100.86	61.01	6161.87	209503.58
	150 mm dia	20	each	8169.99	81.70	8251.69	165033.80
292	Supplying, fixing, testing and commissioning of double flanged sluice valve of rating PN with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts bolts washers, gaskets and conforming to IS 780 of following size asrequired:						0.00
	150 mm dia	7	each	20110.76	201.11	20311.87	142183.09
	200 mm dia	7	each	34725.63	347.26	35072.89	245510.23
293	Supplying and fixing orifice plate made out of 6 mm thick stainless steel (Grade 304) with orifice of required size to be fitted between flange & landing valve of external and internal hydrants to reduce pressure at the outlet to the level of 3.5 kg/cm2 complete as required.	38	each	1204.90	12.05	1216.95	46244.10
294	Supplying, fixing, testing and commissioning, of following sizes of non return valve with CI body						
	50 mm dia	20	each	5250.04	52.50	5302.54	106050.80
	80 mm dia	2	each	6926.50	69.26	6995.76	13991.52
	100 mm dia	6	each	9945.46	99.45	10044.91	60269.46
	150 mm dia	5	each	14204.56	142.05	14346.61	71733.05
295	Supplying, fixing, testing and commissioning of following size Y-Strainer of ductile CI body flanged ends with stainless steel strainer as specified.						
	100 mm dia	1	each	6100.02	61.00	6161.02	6161.02
	200 mm dia	2	each	19777.65	197.78	19975.43	39950.86
296	Supplying and fixing 63mm dia, 15mtr. Long <b>RRL hose</b> pipe with 63mm dia Male and Female Gun metal couplings duly binded with GI wire, rivets etc. conforming to IS 636 (type-A) as required.	76	each	4577.11	45.77	4622.88	351338.88
297	Supplying and fixing First-Aid-Hose Reel with MS construction spray painted in Post office Red, conforming to IS 884 with upto date amendments, complete with the following as required.						0.00
	30 m long 20mm (nominal internal) dia water hose Thermoplastic (Textile reinforced) Type-2 as per IS: 12585						
	20 mm (nominal internal) dia gun metal globe valve & nozzle.						
	Drum and brackets for fixing the equipments on wall.						
	Connections from riser with 40 mm dia stop valve (gun metal) & M.S. Pipe	29	each	14292.67	142.93	14435.60	418632.40
298	Supplying and fixing <b>fire hose cabinet</b> fabricated from 16 gauge M.S. Sheet with single or double glazed front door (with 4 mm thick glass) and locking arrangement, painted fire red with stove enamelled paint "FIRE HOSE" written on front including necessary supports approximate size.						
	a)750mm x 600mm x 250mm deep. (External)	7	each	10520.00	105.20	10625.20	74376.40
299	Providing and fixing <b>Fire hose cabinet door</b> (40mm x 40mm x 5mm) angle depth fabricated with <b>2100mm x 1200mm</b> MS sheet. Complete in all respect with 25mmx25mmx3mm angle frame all around and stiffened in between i/c hinges, handle, locking arrangement, painting with approved synthetic enamel paint i/c sign writing on glass at internal hydrant including providing & fixing S.S. sheet 2mm thick on remaining portion above door to close opening i/c painting etc. as required. Glass shall be 6 mm thick.	31	each	20886.00	208.86	21094.86	653940.66
300	Supply and fixing 63mm dia Gun Metal <b>branch pipe</b> with 20mm (nominal internal diameter) size Gun Metal nozzle conforming to IS 903, suitable for instantaneous connection to interconnect hose pipe coupling as required.	38	each	4176.04	41.76	4217.80	160276.40
301	Supplying and fixing following fire brigade connection of cast iron body with Gun metal male instantaneous inlet couplings complete with cap and chain as required for 150mm dia MS pipe connection, conforming to IS 904 as required.						
	2 Way FBC of CI body	3	each	6093.30	60.93	6154.23	18462.69

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	4 Way FBC of CI body	1	each	12434.97	124.35	12559.32	12559.32
302	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with Air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia Gun metal wheel valve, with required accessories, pressure gauge and painting with synthetic enamel pain of approved shade as required.	4	each	16279.58	162.80	16442.38	65769.52
303	Providing fixing testing & commissioning of 15 mm size quartzoid bulb type sprinklers, of rating 68 degree C. pendent / upright with required accessories.						
	Sprinkler (Pendent / Upright)	4003	each	502.60	5.03	507.63	2032042.89
	Side Wall Speinkler	220	each	502.60	5.03	507.63	111678.60
304	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	5	each	1401.24	14.01	1415.25	7076.25
305	Providing & fixing Auto Air release valve for fire hydant and sprinkler, suitable for pressure not less than 15 Kg/Sq.cm.	6	each	3498.00	34.98	3532.98	21197.88
306	Providing & fixing flow switch in following sizes M.S. pipe including connection etc as required.						
	100 mm dia	33	each	6770.43	67.70	6838.13	225658.29
	150 mm dia	15	each	8091.96	80.92	8172.88	122593.20
307	Providing and fixing in position the industrial type pressure gauges with gun metal / brass valves complete as required	70	each	1003.52	10.04	1013.56	70949.20
308	Providing and fixing stainless steel standard Fireman's Axe with heavy insulated rubber handle tested to 20000 volts as per IS : 926 complete.	31	each	711.00	7.11	718.11	22261.41
309	Supply, installation, testing and commissioning of 150 mm dia Installation Control Valve inclusive of 2 nos 150 mm dia Butterfly Valve, strainer, Alarm Valve with Water Motor Gong, Pressure Gauges, Test Lines with Ball Valves with necessary MS Class "C" piping with threaded fittings of required sizes. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	1	each	42628.80	426.29	43055.09	43055.09
310	Providing, installing, testing & commisioning of fire brigade draw out connection (fire department connection) with suction pipe MS class 'C' 100 mm dia. & 100 mm dia. foot valve & steel chain including wall mounted box M.S. construction made out of 16 gauge MS Sheet with glass door to house the above mentioned componenets. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge. (to be connected to static water tank) It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	1	each	7699.00	76.99	7775.99	7775.99
311	Providing and fixing mechanical foam type(ISI marked) fire extinguishers consisting of welded M.S. cylindrical body squeeze lever discharge valve 30 cm long high pressure discharge hose, discharge nozzle suspension bracket ISI marked as per IS 933 finished externally with red enamel paint and fixed to wall with brackets complete with internal charger.						
	Capacity 6 kg. I.S.I. Marked.	45	each	2947.00	29.47	2976.47	133941.15
312	Providing and fixing Carbon-di-oxide fire extinguishers consisting of welded M.S cylindrical body,squeeze lever discharge valve fitted with internal dischargetube, 30cms long high pressure discharge hose, discharge nozzle, suspension bracket, confirming to IS : 934 finished externally with red enamel paint and fixed to wall with brackets with rawl plug/dash fasteners complete with internal charge.						
	Capacity 4.5 kg. I.S.I. Marked.	45	each	8537.00	85.37	8622.37	388006.65
	<b>TOTAL</b>						<b>27957923.30</b>
	<b>Sub Head - I - Point Wiring</b>						
313	Point wiring for light/bell with 2X1.5 sq. mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length in below type of pipe erected with 6A Modular type switch/bell push & accessories and earth continuity of following type erected on PVC/metallic/wooden Box single mounting base frame, covered with textured/metalic white front plate modules erected on / in wall / ceiling as per pipe erected with necessary lamp holder/ ceiling rose/ H.D Connector as directed.						
	(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete						
	Cat III	2361.00	point	481.00	4.81	485.81	1146997.41
314	Point wiring for Tissino / Modular secondary light point with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires, in below type of pipe to be erected complete with earth continuity and necessary connection with primary light with accessories erected on Metal / PVC / wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic sheet for open / concealed wiring. with necessary Lamp holder / ceiling rose / H.D.Connector as directed.						
	Note:- Maximum up to 6 mtrs length, excess will be considered as Mains for Secondary Point.						
	(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete	2100.00	point	166.00	1.66	167.66	352086.00
315	Point wiring for Fan with 2X1.5 sq. mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length in below type of pipe erected with 6A Modular type switch and num free EME four or more step type electronic fan regulator with separately mounted and accessories with earth continuity of following type erected on PVC/ metallic /wooden Box single mounting base frame, covered with textured/ metallic white front plate modules erected on / in wall / ceiling as per pipe erected with necessary ceiling rose/ H.D Connector as directed.						
	(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete						
	Cat III	1272.00	point	668.00	6.68	674.68	858192.96
316	Providing following type of Modular type Accessories mounted with PVC/metallic.wooden box, single mounting base frame covered with textured / metallic / white front plate, modules erected with necessary connections as per site situation directed by Engineer in charge.						
	(1)One No. SP 6 Amp.						
	Cat III	20	each	150.00	1.50	151.50	3030.00
	(9) 16 Amp. SP one way switch						
	Cat III	2878	each	179.00	1.79	180.79	520313.62
	(10) 6/16Amp. Universal socket						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Cat III	2898	each	198.00	1.98	199.98	579542.04
317	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 2 nos. 3 pin 5/6 A modular socket outlet and 2 nos. 5/6 A modular switch, connections etc. as required. (For light plugs to be used in non residential buildings).	1524	each	642.00	6.42	648.42	988192.08
318	Providing & erecting insulated socket 3P+N+E with Plug 32A rating which is comprised of Four pole MCB slot and insulated socket IP40 cat-III	139	each	2169.00	21.69	2190.69	304505.91
319	Providing & erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked standard copper conductor wire in following type of pipe to be erected concealed in / flushed on wall / ceiling, with 1.5 sq.mm copper conductor FRLS PVC insulated standard wire of green colour for earth continuity of following size.						
	(A) With medium class Rigid PVC pipe and accessories						
	(A) 2 wire 1.5 sq.mm	5800.00	metre	62.00	0.62	62.62	363196.00
320	Providing & erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked standard copper conductor wire in following type of pipe to be erected in / on wall / ceiling, with 2.5 sq.mm copper conductor FRLS PVC insulated standard wire of green colour for earth continuity of following size.						
	(A) with medium class Rigid PVC pipe and accessories						
	(a) 2 wire 4 sq. mm	43500.00	metre	111.00	1.11	112.11	4876785.00
	(b) 2 wire 6 sq. mm	400.00	metre	146.00	1.46	147.46	58984.00
	(g) 4 wire 4 sq. mm	13690.00	metre	179.00	1.79	180.79	2475015.10
	(H) 4 wire 6 sq. mm	5140.00	metre	258.00	2.58	260.58	1339381.20
321	providing and erecting Mains with ISI marked, 1.5KV grade electrolyte multi stranded, annealed copper conductor with heat resistant PVC insulated conforms to IS 694, IEC - 227 erected in existing pipe of following size (Specifically for control panel, relays, power switchgears, motor starters & control wiring) with required size of copper lugs, nuts and bolts if required.						
	(e) One wire 6.00 sq. mm	3360.00	Mtr.	56.00	0.56	56.56	190041.60
	(g) One wire 16.00 sq. mm	6720.00	Mtr.	141.00	1.41	142.41	956995.20
322	Providing and erecting ISI mark Medium class RIGID PVC PIPES of following size complete to be erected on/in wall or ceiling erected with necessary PVC fittings & Junction boxes fixed with adhesive solution & Clamps with following dia of pipes, in approved manner as directed						
	(b) 25 mm	3000.00	Mtr.	33.00	0.33	33.33	99990.00
	(c) 32 mm	6000.00	Mtr.	54.00	0.54	54.54	327240.00
323	Supply & installation of surface mounted U PVC snap-on adaptable trunking raceways, fabricated out of U-PVC to Off-White or approved shade as per IS 733 of thickness 2.0mm for the base and sides with all accessories like removable covers, joints ,height spacer,angles complete with necessary bends, suitable sized junction boxes and tees etc, Complete.						
	(b)Size: 50x130 mm PVC Raceways for Power & Data with 2 compartments above specifications.	500.00	Mtr	1817.00	18.17	1835.17	917585.00
324	Supplying under floor pregalvanised corrosion proof rectangular sheet steel cable trunking of 1.6 mm thick having with stand point load up to 1.33 Ton & free from seepage of concrete of screed water with all accessories,Junction Box, Joints as required and demanded by engineer-incharge and laying /erecting as per OEM guidelines and as per instruction of engineer incharge having following size of dimensions and No of compartments (W x D x T) Cat-III						
	[1] 50mm x 25mm x 1.6 mm with One Compartment	400.00	Mtr	295.00	2.95	297.95	119180.00
	[10] 150mm x 38mm x 1.6mm with Three Compartments	800.00	Mtr	758.00	7.58	765.58	612464.00
	[4] 225mm x 25mm x 1.6 mm with Three Compartment	600.00	Mtr	1084.00	10.84	1094.84	656904.00
325	Providing & fixing approved make Perforated C type Cable tray, made from sheet steel. The cable tray should be single or double bended as per required and as per IS 2062 / 1079 and shall be coated with hot dip galvanizing as per IS 2629/4759 with max 17.5% perforation with coupler plate / fish plate and GI hardware like nut - bolt and washers etc. erection with necessary support included) as per specification and as per instruction of Engineer In charge.						
	(3) 150 X 50 X 1.6 mm Thick	400.00	RM	420.00	4.20	424.20	169680.00
	(5) 300 mm X 50 mm X 2.0 mm thick	800.00	RM	616.00	6.16	622.16	497728.00
	<b>Sub-Head - II - Panels &amp; DB'S</b>						
326	Fabrication, supply, installation, testing and commissioning of wall/floor maounted cubicle type LT panels suitable for 415 V 3 phase, 4 wire, 50 Hz AC supply system (IP 42 degree of protection) fabricated in compartmentalized design from CRCA sheet made out of 2 mm thick for frame work & covers 3mm thick for gland plates including cleaning & finishing complete with 7 tank process for powder coating in approved shade, having TPN Al alloy bus bars of high conductivity, DMC/SMC bus bar supports with short circuit withstand capacity of 31 MVA for 1 sec, bottom base channel of MS section. Entire panel shall have a common copper earth bar of size as per CPWD specification at the rear with 2 Nos earth stud, interconnections from main busbar to switch gears with required size of AL bus bar and control wiring with PVC insulated FRLS copper conductor single core cable, cable alleys, cable gland plates etc. providing following switch gears:						
	<b>Note:</b> All the MCCBs of capacity more than 250 Amp should be <b>Microprocessor</b> based and below 250Amp it should be <b>Thermal Magnetic based</b>						
	<b>MDB- E- PANEL</b>						
	Incoming:						
	1000 A, FP ACB 50 KA - 1 No.						
	1250 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	400 A FP MCCB, 35 KA - 2 Nos.						
	200 A FP MCCB, 35 KA - 3 Nos.						
	100 A TPN MCCB, 25 KA - 2 Nos.						
	63 A TPN MCCB, 25 KA - 2 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	480099.00	4800.99	484899.99	484899.99
	<b>FDB- Light Panel - 1</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Incoming:						
	125 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 4 Nos.						
	40 A FP MCB, - 8 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	81650.00	816.50	82466.50	82466.50
	<b>FDB- Light Panel - 2</b>						
	Incoming:						
	125 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	40 A FP MCB, - 6 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	4	each	50378.00	503.78	50881.78	203527.12
	<b>FDB- Light Panel - 3</b>						
	Incoming:						
	160 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 17 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	108185.00	1081.85	109266.85	109266.85
	<b>FDB- Light Panel - 4</b>						
	Incoming:						
	125 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 10 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	2	each	78654.00	786.54	79440.54	158881.08
	<b>FDB- Light Panel - 5</b>						
	Incoming:						
	160 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 7 Nos.						
	40 A FP MCB, - 7 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	95741.00	957.41	96698.41	96698.41
	<b>FDB- Light Panel - 6</b>						
	Incoming:						
	125 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 3 Nos.						
	40 A FP MCB, - 7 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	5	each	76906.00	769.06	77675.06	388375.30
	<b>MDB- P- PANEL</b>						
	Incoming:						
	1600 A, FP ACB 50 KA - 1 No.						
	2000 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	800 A, FP ACB 50 KA - 2 No.						
	400 A FP MCCB, 35 KA - 1 Nos.						
	200 A FP MCCB, 35 KA - 1 Nos.						
	100 A TPN MCCB, 25 KA - 2 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	790361.00	7903.61	798264.61	798264.61
	<b>FDB- Power Panel - 1</b>						
	Incoming:						
	125 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 7 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	2	each	54373.00	543.73	54916.73	109833.46
	<b>FDB- Power Panel - 2</b>						
	Incoming:						
	125 A, FP MCCB 25 KA - 1 No.						
	200 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 5 Nos.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Indication lamp RYB with Fuses/MCB etc. as req.	2	each	49380.00	493.80	49873.80	99747.60
	<b>FDB- Power Panel - 3</b>						
	Incoming:						
	250 A, FP MCCB 36 KA - 1 No.						
	300 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 3 Nos.						
	100 A, FP MCCB 25 KA - 6 No.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	6	each	162832.00	1628.32	164460.32	986761.92
	<b>FDB- Power Panel - 4</b>						
	Incoming:						
	200 A, FP MCCB 25 KA - 1 No.						
	300 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	63 A FP MCB, - 2 Nos.						
	63 A, FP MCCB 25 KA - 4 No.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	10	each	98115.00	981.15	99096.15	990961.50
	<b>MDB- UPS Panel</b>						
	Incoming:						
	400 A, FP MCCB 36 KA - 1 No.						
	500 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	400 A, FP MCCB 36 KA - 1 No.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	126156.00	1261.56	127417.56	127417.56
	<b>Lift Panel - 4 Lifts</b>						
	Incoming:						
	200 A, FP MCCB 25 KA - 1 No.						
	300 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	32 A DP MCB, - 3 Nos.						
	63 A, FP MCCB 25 KA - 5 No.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	109504.00	1095.04	110599.04	110599.04
	<b>Lift Panel - 1 Lifts</b>						
	Incoming:						
	63 A, FP MCCB 25 KA - 1 No.						
	100 A TPN AL. bus bar with coloured heat shrinkable PVC sleeve -1 Set						
	Outgoings:						
	32 A DP MCB, - 2 Nos.						
	63 A, FP MCCB 25 KA - 2 No.						
	Instruments:						
	Multi Function Meter (MFM) with CTs & Fuses/MCB/Selector Switch -1 Set						
	Indication lamp RYB with Fuses/MCB etc. as req.	1	each	68899.00	688.99	69587.99	69587.99
327	Providing and erecting approved make Four pole moulded case circuit breaker having breaking capacity ICU of 25 KA at 415 V, having normal current rating up to 25A to 100A, with fixed thermal & magnetic release suitable to work on AC supply 50c/s with all internal connections & complete erected in existing 16 G.M.S housing.						
	ICS=100% of ICU only Cat III	64	each	6112.00	61.12	6173.12	395079.68
328	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 35 KA. at 415 V. having normal current rating 125A. with Fixed thermal & magnetic release suitable to work on A.C.supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing.						
	ICS=100% of ICU only Cat III	14	each	7976.00	79.76	8055.76	112780.64
329	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 35 KA. at 415 V. having Normal current rating 200A.with variable Thermal & magnetic release suitable to work on A.C.supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S.housing						
	ICS=100% of ICU only Cat III	18	each	16061.00	160.61	16221.61	291988.98
330	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 35 KA. and above at 415 V . having normal current rating 250A. with variable thermal & magnetic release suitable to work on A.C.supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing.						
	ICS=100% of ICU only Cat III	6	each	20739.00	207.39	20946.39	125678.34
331	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 50 KA and above at 415 V having Normal current rating 400A. with variable Thermal & magnetic release suitable to work on A.C.supply 50 c/s. With all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing.						
	ICS=100% of ICU only Cat III	2	each	24979.00	249.79	25228.79	50457.58
332	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 50 K.A. and above at 415 V having normal current rating 800A.with variable thermal & magnetic release suitable to work on A.C.supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S.housing.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	ICS=100% of ICU only Cat III	2	each	30429.00	304.29	30733.29	61466.58
333	Providing & erecting sheet steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for (A) single phase incoming and horizontal single phase outgoing (b) sheet steel double door (IP-43) (iii)8 way	3	each	1141.00	11.41	1152.41	3457.23
	Three phase incoming and single phase horizontal type outgoing per phase isolation type (PPI) (b) sheet steel double door (ii)6 way	2	each	2885.00	28.85	2913.85	5827.70
	(iii)8 way	51	each	3379.00	33.79	3412.79	174052.29
	(iv)12 way	54	each	3836.00	38.36	3874.36	209215.44
334	Providing and erecting Sheet Steel powder coated <u>Vertical</u> MCB distribution board (VTPN) - flush / surface mounted double door (IP54) fitted with copper insulated busbar, isolated neutral bar, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3, suitable for 250 AMP TPN MCCB + RCCB as incomer and three phase outgoing as per following .(The DBs should be used of same company of MCB to be used)						
	(C)8 way outgoing	30	each	11709.00	117.09	11826.09	354782.70
	(D)12 way outgoing	24	each	14247.00	142.47	14389.47	345347.28
335	supplying & erecting sheet steel powder coated cable end termination Box to be mounted on Top or Bottom of MCB Distribution Box for housing / Covering Extra wires & cables suitable for following size of MCB Db Box.						
	(C) Single Phase 8 Way	3	each	323.00	3.23	326.23	978.69
	(F) Three Phase 6 Way	2	each	577.00	5.77	582.77	1165.54
	(G) Three Phase 8 Way	51	each	683.00	6.83	689.83	35181.33
	(H) Three phase 12 way	54	each	789.00	7.89	796.89	43032.06
336	Providing & erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240 V A.C system and having breaking capacity 10 KA to be erected in existing box confirming to IS 8826/1996 with ISI mark.						
	cat III	3222	each	111.00	1.11	112.11	361218.42
337	Providing & erecting 240 V MCB double pole switch for motor & inductive load (C Curve) having 10 KA breaking capacity & confirms to IS : 8828 in existing box having following capacity (A) 6 to 32 Amp. Cat III	3	each	297.00	2.97	299.97	899.91
338	Providing & erecting 415 V MCB three Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (b) for 40 amps cat III	240	each	641.00	6.41	647.41	155378.40
	(c) for 63 amps cat III	288	each	709.00	7.09	716.09	206233.92
339	Providing & erecting Four pole Miniature Isolator A.C.22 duly confirms to IS 13947-3 in existing box. (a) for 40 amps cat III	71	each	484.00	4.84	488.84	34707.64
	(b) for 63 amps cat III	38	each	590.00	5.90	595.90	22644.20
340	Providing & erecting approved make ELCBs / RCCBs confirming to IS : 12640 and having sensitivity of 30 mA and short circuit withsatnd capacity of 10KA and suitable for operation on single phase 240 V, 50 Hz having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component for following Max rating erected as directed 40 Amps DP cat III	219	each	2213.00	22.13	2235.13	489493.47
	63 Amps DP cat III	114	each	2628.00	26.28	2654.28	302587.92
341	Providing & erected metallic vitrified danger notice board as per language suggested by Engineer Incharge for MEDIUM VOLTAGE installation to be erected as per IS-2551. <b>Rising Mains &amp; Cables</b>	164	each	69.00	0.69	69.69	11429.16
342	Providing and erecting sandwiched type bus duct having following specification : Sandwich type busbar for use as Feeder Busbar for interconnection between separate electrical equipment/ load centers, and for use as Plug in busbar risers. The busbar shall be suitable for operation in a 690V / 1000 V system with frequency of 50 Hz. System can be either earthed or unearthed. Impulse voltage should be 12 KV. Standards: The busbar shall be designed and manufactured in accordance with the following international standards for busbar trunking. -IS 8623/ 1993 Part I & II : Particular requirements of busbar trunking System -IEC 61439 Part I & VI : Particular requirements of busbar trunking System -IEC- 60529 : Degree of protection TESTING The busbars shall be type tested at a reputable national / International test laboratory (ASTA or CPRI) for short circuit withstand. The test shall be for a minimum duration of one second. • Degree of ingress protection (IP rating) shall also be tested at any reputed independent laboratory. This test shall be for IP 55 for Indoor and IP 65 for Outdoor application. • Short circuit and Degree of protection type test reports will be submitted for vThe busbars shall be of high conductivity Copper of 99.9% pure ETP grade and high conductivity Aluminium of 99.59% pure 19501 grade. Where as earth conductor is required, it shall be separate external earth conductor, of high conductivity aluminium. Cross section of Earth Conductor shall be as per IEC 60439.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	It should be possible to provide a 200% Neutral where specified. Phase cross over box should have busbars crossing over each other not cables. The busbars shall be individually insulated with 2 layers of insulating film. Layers of POLYESTER material class 'F', 155°C. The housing shall be made of 1.6 mm electrogalvanised sheet steel, with an epoxy powder coated paint finish of RAL 7032 grade. Alternatively Aluminum casing of 2.5mm may also be provided. The housings shall be profiled, to provide higher strength and efficient heat dissipation. The width of the housings shall be same for all ratings of busbars, in order to provide interchangeability of tap off boxes. The joints between sections shall be made so as to provide flexibility during installation and expansion / contraction of busbar during operation. The joints shall be of the single bolt type. The joint construction must have the following features.						
	a) Thermal expansion of Busbars at joint of at least 4 mm per joint. b) The joint insulation must be of one piece moulded design and not have any cut edges which can absorb moisture. c) Joint assembly shall be removable as separate sub-assembly so that it can be inserted or removed without disturbing the adjacent sections. d) The joint system must be designed in a way that the installer cannot insert the busduct length too far and damage the bolt insulator. e) The busbars ends shall not have any holes or slots at the joints – the electrical continuity shall be through pressure plates, achieving a high area of joint cross section and expansion capability.						
	Tap of Units a) Plug in boxes will be draw out type, contacts shall be silver plated and spring loaded. b) The front operating handle will be interlocked with the plug-in boxes cover so that MCCB can be operated only with suitable cover in close position. c) The door shall be provided with the door knobs. d) When the MCCB is in 'ON' position, even with the door knobs unlocked, the operator should not be able to remove the box or open the tap off location cover. e) During insertion, the earth conductor shall make contact first before the phase conductors. This should follow the sequence of first in last out concept. f) When the box is open the live conductors shall be safe guarded by a transparent insulator plate which allows for visible inspection but does not allow touching of the live conductors.						
	g) The tap off unit arrangement must achieve IP 54 without requiring any additional sealing at site. h) The tap off boxes will be suitable for accommodating MCCBs or other accessories, as required. The tap off units should allow the flexibility of accommodating different, reputed MCCB makes, to be mutually agreed depending on the tender requirements.						
	<b>(A) Aluminium Bus</b>						
	(a)400 Amp. capacity	84.00	Mtr.	8314.00	83.14	8397.14	705359.76
	(c)800 Amp. capacity	84.00	Mtr.	11103.00	111.03	11214.03	941978.52
	<b>1.1 KV XLPE CABLES</b>						
343	Providing and erecting XLPE (IS:7098) - BB ISI armoured cable multistrand aluminium conductor for 1.1 KV . To be laid on wall with necessary clamps or in existing trench / pipe of following size of cables.						
	(C) 3.5 core 50 sq. mm (25 sq. mm 0.5 core)	420.00	metre	282.00	2.82	284.82	119624.40
	(E) 3 1/2 core 95 Sq. mm (50 Sq. mm 1/2 core)	50.00	metre	486.00	4.86	490.86	24543.00
	(F) 3 1/2 core 120 Sq. mm ( 70 Sq. mm 1/2 core)	60.00	metre	535.00	5.35	540.35	32421.00
	(H) 3 1/2 core 185 Sq. mm (95 Sq. mm 1/2 core)	440.00	metre	896.00	8.96	904.96	398182.40
	(J) 3 1/2 core 300 Sq.mm ( 150 Sq. mm 1/2 core)	180.00	metre	1394.00	13.94	1407.94	253429.20
344	Providing and erecting XLPE (IS:7098) - BB ISI armoured cable multistrand aluminium conductor for 1.1 KV . To be laid on wall with necessary clamps or in existing trench / pipe of following size of cables.						
	(B) 4 core 25 Sq. mm	4310.00	metre	189.00	1.89	190.89	822735.90
	(B) 4 core 35 Sq. mm	110.00	metre	253.00	2.53	255.53	28108.30
	<b>END TERMINATIONS :</b>						
345	Providing & fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with outgoing tails insulating tape etc. for following size of cables.						
	(A) 3.5 / 4 core 25 Sq. mm	174	each	66.00	0.66	66.66	11598.84
	(B) 3.5 core 35/50 sq. mm	58	each	75.00	0.75	75.75	4393.50
	(D) 3 & 1/2 core 95 Sq. mm	10	each	130.00	1.30	131.30	1313.00
	(E) 3 & 1/2 core 120 Sq. mm	2	each	139.00	1.39	140.39	280.78
	(G) 3 & 1/2 core 185 Sq. mm	44	each	236.00	2.36	238.36	10487.84
	(I) 3 & 1/2 core 300 Sq. mm	8	each	278.00	2.78	280.78	2246.24
346	Solder less crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly climped with high pressure tool & connected to switchgear terminals with brass / cadmium plated nut bolts in an approved manner.						
	(C) 16/25 Sq.mm.	696	each	15.00	0.15	15.15	10544.40
	(D) 35/50 sq. mm	232	each	20.00	0.20	20.20	4686.40
	(F) 95 Sq.mm.	40	each	40.00	0.40	40.40	1616.00
	(G) 120 Sq.mm.	8	each	45.00	0.45	45.45	363.60
	(I) 185 Sq.mm.	176	each	80.00	0.80	80.80	14220.80
	(K) 300 Sq.mm.	32	each	98.00	0.98	98.98	3167.36
	<b>SITC of Light Fitting, Fans and Fixtures</b>						
347	Installation, testing and commissioning of prewired, LED fittings of all types , complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, copper conductor, single core cable etc. as required.	120	each	219.00	2.19	221.19	26542.80

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
348	Supplying and erecting LED Indoor fittings with LEDs of wattage 0.2 watt to 0.5 watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet steel conforming to IS: 513/CRCA/aluminium pressure die cast powder coated and high U.V. & corrosion resistance with diffuser housed in aluminium casted body with company mark/name 120 to 300 V, power factor more than 0.9, THD < 10%, CCT 3000 K to 65 K, Luminaire efficacy > 85 lumens/watt. LED efficiency 110 lumens/watt, LED driver efficiency > 85%. CREE/OSRAM/PHILIPS Lumileds/ NICHIA/ SEOUL/ Bridgelux make LED used for luminaire (fitting required LM-79 & LM-80 certificates ) ( Note: below description have shown ranges of wattage capacity of LED fittings. The Engineer Incharge may select any wattage capacity between the ranges shown).						
	(A) Square/ Circular shaped Surface/Recessed Mount Downlight with provision for spring loaded mounting clips complete.IP20						
	(a) 5-9 watts, surge-2 KV						
	Cat - III	290	each	218.00	2.18	220.18	63852.20
	(b) 11-15 watts, surge-2 KV						
	Cat - III	1356	each	423.00	4.23	427.23	579323.88
349	(B) LED Panel light with provision for plane front frame with translucent cover fixed to housing complete IP 20.						
	(vi) 36 watts, 24" x 24", Surge- 2KV						
	Cat - III	1737	each	1777.00	17.77	1794.77	3117515.49
350	Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy > 85 lumens/watt, LED, LED driver efficiency > 85 % ( fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.)						
	(A) Tube light with integral driver						
	(i) 5-10 Watts, Surge-2 KV, IP-20, conventional 1 to 2 feet						
	Cat - III	115	each	164.00	1.64	165.64	19048.60
	(iii) 18-20 Watts, Surge - 2KV,IP-20, conventional 4 feet						
	Cat - III	290	each	293.00	2.93	295.93	85819.70
	(v) 36-40 Watts, Surge-2 KV, IP-20, conventional 4 feet						
	Cat - III	379	each	530.00	5.30	535.30	202878.70
351	Supply of 5-6 W LED Exit & matter at per site requirement Light with inbuilt battery backup of 2 hours, including drivers, fixing accessories complete as required. The fixture should have sufficient intensity and all fixing arrangement complete as required at site. Bajaj : BESL 03 LED DSD WBB Red/Green or equivalent of Decon and Insatpower	120	each	3717.00	37.17	3754.17	450500.40
352	Providing and erecting PVC body surface or pendant mounting LED Bulk type 9 watt Lighting fitting with electronic driver and lumen output from luminaire 720 lm, input voltage range 90-300 VAC, 50 Hz cool white (3000 to 6500 K), inbuilt driver, 20 degree C to + 60 deg C working temperature, AL frame with Beam Angle 120 deg.	53	each	780.00	7.80	787.80	41753.40
353	Supply, Installation, Testing and Commissioning of 1200 mm (48") sweep, BEE 5 Star rated, Ceiling fan with Brush Less Direct Current (BLDC) permanent ferrite magnet Motor, class of insulation: B, Rust free 3 nos.Aluminium blades, 2 nos. canopies, shackle kit with earthing provision, copper winding, Power factor not < 0.9, Service Value (CMM/W) minimum 6.85, Air delivery minimum 215 CMM, 350 RPM,230v (tolerance as per IS : 374-2019), THD < 10%, with remote unit for Speed Control and all remaining accessories including safety pin, nut bolts, washers, temperature rise = 75 degree C (Max.), suitable for 140 to 285 Voltage and rectifier circuit with surge, over current and overload protection , 50 Hz, Single phase AC Supply, earthing etc. Complete as required.[ Make shall be approved by Engineer in Charge]	1272	each	2857.00	28.57	2885.57	3670445.04
354	Supplying & erecting Single phase approved make industrial exhaust fan suitable for medium duty ring mounted low noise operation suitable for medium duty having following dia size and maximum speed in RPM						
	(A) 305 mm dia. 900 RPM, Cat II	114	each	2034.00	20.34	2054.34	234194.76
	(D) 450 mm dia. 900 RPM, Cat II	7	each	3899.00	38.99	3937.99	27565.93
355	Providing suitable M.S. louver shutter of the Exhaust Fan.	121	each	365.00	3.65	368.65	44606.65
	<b>Earthing &amp; Lightning Conductor</b>						
356	Supplying & erecting funnel type earthing having earth plate of following size buried in specifically prepared earth pit 3 mtr, below ground with 40 kg charcoal and salt with alternate layers of charcoal & salt, 20 mm dia GI pipe with funnel with a wire mesh for watering & bricks masonry block CI cover complete as per para 7.3 of IS 3043 with necessary length of double Galvanized Iron / copper earth wire no. 6 SWG bolted with lug to the plate and covered in 12 mm dia. G.I pipe 2.5 mtr long complete connected to the nearest switch gear with end socket as per direction & duly tested by earth tester confirming to IS (As per drawing) with following Specification.						
	(B) with 45 x 45 x 0.35 cms. G.I. earth plate	16	each	2543.00	25.43	2568.43	41094.88
	(C) with 60 x 60x 0.315 cms. Copper earth Plate	12	each	7797.00	77.97	7874.97	94499.64
357	Providing and erecting required size HOT deep galvanized iron strip for earthing of H.T, OCB/ACB/Transformer LT panel board, motors etc. using proper clamp.	530.00	Kg	77.00	0.77	77.77	41218.10
358	Providing and erecting required size Copper strip for earthing of H.T, OCB/ACB/Transformer LT panel board, motors etc. using copper clamp.	600.00	Kg	787.00	7.87	794.87	476922.00
359	Providing and erecting Annealed bare Copper wire 8 to 16 SWG.	350.00	Kg	787.00	7.87	794.87	278204.50
360	Providing and erecting Hot deep Galvanized Iron strip wire 8 to 16 SWG.	275.00	Kg	77.00	0.77	77.77	21386.75

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
361	SITC of Vertical Air Terminal Solid aluminium with base-10 mm dia and 3000 mm long. Air Termination base tested for conditioning, ageing test & Lightning impulse current withstand test: 100 KA of 10/350 Us waveform in an accerded third party laboratory as per 6.3 & 6.4 of IEC 62561-1 2017 protocol with MAST 34 mm dia 3000 mm long-Cold Galvanized.	15	each	9323.00	93.23	9416.23	141243.45
362	SITC of 8 mm dia solid Aluminium Conductor for roof top mesh grid and tested as per IEC 62561- 2 conducted in the Govt. accredited thirty party laboratory to meet the requirement of IS/IEC 62305 with Required Accessories - Aluminium Holding clamp at every 1 mtr distance, Aluminium/SS cross splicer at every crossing of Alu. conductor, Expansion piece with connectors at every 20 mtr distance, Aluminium straight Splicer to connect conductors. All Accessories should be tested as per IEC 62561-1 2018 Cl. 6.3 for conditioning & Ageing Test & 6.4 for Lightning impulse current withstand test: 100 kA of 10/350µs waveform(Ageing & Electrical test ) conducted in a sequence manner & tested in the Govt. accredited Third party laboratory to meet the requirements of IS/IEC 6230	1700.00	metre	297.00	2.97	299.97	509949.00
363	SITC of 10 mm MS Round solid conductor having smooth surface should be tested and use exclusively for lightening protection (vertical Riser / down conductor which shall be concealed in column) to meet the requirement of IS IEC 62305 with accessories. Earthing stud of dimensions SS-75 mm OD plate with 10 mm dia tail connector used in structural steel ring earthing system to meet the requirement of IS / IEC 62305. (For interconnecting the column and Terrace AL Conductor / strip/ flat SS cross connector to connect Earth fixing oint to vertical raiser / down conductor. SS straight splicer at every 4 mtr to connect MS conductor in column. Bonding / Rehar clamp at every 3 mtr suitable for innerconnecting round conductor with reinforcement inside the concrete for structural earthing system, SS connector - To connect external conductor 8-10 mm with earth fixing point. All accessories shall be test as per IEC 62561 l 2018 Cl.6.3 for conditioning & ageing test & 6.4 for lightening impulse current withstand test:100 KA of 10/350 Us waveform (Ageing & Electrical test) conducted in a sequence manner & tested in the Govt. accerded Third party laboratory to meet the requirements of IS/IEC6230.	500.00	metre	721.00	7.21	728.21	364105.00
364	SITC of Galvanized steel flat 25X6 mm thickness from earth electrode directly in ground as required. Zinc coating 500 g/m square (approx 70 micron coating) tested used exclusively for lightening protection earthing system and ring equipment bonding.	630.00	metre	153.00	1.53	154.53	97353.90
365	SITC of 14.2 mm dia 3 mtr long earth electrode of high tensile steel electrode with 250 micron copper bonding & 1 bag of carbon fill based environment friendly backfill tested as per IEC 62561-7 in NABL accerded Laboratory and suitable stainless steel double sided clamp. Eco friendly rust proof heavy duty weather proof polythylene earth pit chamber with following dimensions: 254 mm dia (top) 330 mm dia (bottom) & 260 mm (height).	8.00	Per Set	5933.00	59.33	5992.33	47938.64
	<b>LV SERVICES</b>						
	<b>Passive Cabling &amp; LAN System</b>						
	Note: Wiring/Fiber installation shall include numbering, Ferruling, termination and testing of cables at both ends.						
	Fiber Splicing, Testing with OTDR etc. shall be the part of installation of the fibers.						
	Test Reports of Passive Items with dully authorized by OEM shall be submitted for 25 years warrantee.						
	All Active devices shall have minimum 5 years of support from the date of handover.						
366	Providing & erecting ISI mark Medium class RIGID PVC Pipes of following size complete to be erected on / in wall or ceiling erected with necessary PVC fittings & junction boxes fixed with adhesive solution & clamps with following dia of pipes, in approved manner as directed.						
	(b) 25 mm	30000.00	metre	33.00	0.33	33.33	999900.00
367	Supplying, drawing, Testing and commissioning of Cat6A UTP 4 pair, 23 AWG solid copper cable in existing conduit/ on surface, U/FTP, LSZH, Non- Plenum, Horizontal (solid) Cable suitable for high speed data networking application supporting upto 10Gbps over a 100 meter channel. The 4 Unshielded Twisted Pairs (UTP) cable with color coded insulation for easy indentification should have FLAME PROPERTIES i.e. Flammability Test - IEC 60332-1, Smoke Density - IEC 61034, LSZH standards compliance: ANSI/TIA-568 C.2, ISO/IEC 11801, IEEE 802.3an, RoHS. Delay Skew should be < 45NS. The outer Cable Diameter should be 7.5 + 2 mm. Cable should have been tested and verified by UL/ ETL etc. complete as required.						
	1 Run of cable	40000.00	metre	63.00	0.63	63.63	2545200.00
	2 Run of cable	35000.00	metre	105.00	1.05	106.05	3711750.00
368	Supplying, Installation, Testing and commissioning of CAT6A Copper Information Outlet (IO) with face plate of color as per site requirement, should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D. All copper Cable and Components should be from same OEM to maintain compatibility and interoperability etc. complete as required.	2043	each	256.00	2.56	258.56	528238.08
369	Supplying and fixing of 15U size Wall Mount Rack having Fixed Structure with 0.8mm CRCA Sheet, completely knocked-down condition (CKD) Shape, Vertical Mounting Rail 1.6 mm with 'U'Marking, Minimum 2 cable entry/exit provision at Top and bottom with rubber protection, Front 5mm Toughened Glass with lock, wall mounting kit, Powder coated Color- RAL-7035, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.	4	each	11297.00	112.97	11409.97	45639.88

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
370	Supplying and fixing 24U Rack with 4 inch Castor wheels and front brake Floor Standing Rack with Main Frame Pillar of 1.25mm Powder Coated CRCA Sheet with removable side panels, L- Shape adjustable Vertical Mounting Rail of 2mm with 'U' Marking completely knocked-down condition (CKD) Shape, fitted with 4 number cooling fans, minimum 5nos two line cable entry/exit provision at top and bottom with rubber protection, Front door 5mm Toughened Glass with MS frame or MS perforated with lock, Rear MS vented or perforated door, Powder coated Color- RAL- 7035 or black, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.	12	each	17967.00	179.67	18146.67	217760.04
371	Supplying and fixing 42U Rack with 6 inch Castor wheels and front brake Floor Standing Rack with Main Frame Pillar of 1.6mm CRCA Sheet with removable side panels, L- Shape adjustable Vertical Mounting Rail of 2mm with 'U' Marking completely knocked-down condition (CKD) Shape, fitted with 4 number cooling fans, minimum 8nos two line cable entry /exit provision at top and bottom with rubber protection, Front door 5mm Toughened Glass with MS frame or MS perforated with lock, Rear MS vented or perforated door, Powder coated Color- RAL- 7035 or black, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.	4	each	27927.00	279.27	28206.27	112825.08
372	Supplying, Installation, Testing and commissioning of following CAT6A Patch Cord should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.						
	Copper Patch Cords of length 1m (3ft)	2043	each	147.00	1.47	148.47	303324.21
	Copper Patch Cords of length 3m (10ft)	2043	each	343.00	3.43	346.43	707756.49
373	Supply, Installation, Testing & Commissioning of Staggrd 24 Port Unshielded, Loaded with Category 6A RJ45 Unshielded Modular Jack, Keystone information outlet (I/O) in accordance with ANSI/TIA 568.2-D, IEC 60603-7-4 2nd Edition, ISO/IEC 11801, ROHS Compliant. The I/O should have minimum 750 mating cycle and 200 insertion cycle and ETL 04-Connector Channel Verified, 1U height, Black with integrated cable support bar, clear label marks and earthing plug for UTP cable termination at rack end complete etc as required.	91	each	7917.00	79.17	7996.17	727651.47
374	SITC of O. F. Cable 06F Outdoor - Armoured Unitube SM - HDPE Sheath [Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	3800.00	Mtrs.	50.00	0.50	50.50	191900.00
375	SITC of LIU 12 PORT Rack Mount - Loaded (LC) SM [Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	32	each	6833.00	68.33	6901.33	220842.56
376	SITC of PIGTAIL LC SM SIMPLEX LENGTH- 1m [Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	192	each	772.00	7.72	779.72	149706.24
377	SITC of PATCH CORD LC-LC SM DUPLEX LENGTH- 3m [Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	32	each	1883.00	18.83	1901.83	60858.56
<b>ACTIVE LAN SYSTEM</b>							
378	SITC of 20 x SFP ports 4 x Combo 10/100/1000BASE-T/SFP ports 4 x 10G SFP+ ports 6 kV surge protection on all RJ-45 access ports Switch Resource Management (SRM) for flexible management of system resources Redundant Power Supply (RPS) support MPLS L2VPM/L3 VPN support Full L3 routing protocol support including OSPF, BGP, and ISIS for IPv4/IPv6 SDN-enabled switch, compatible with Openflow 1.3 10-GbE SFP+ to SFP+ 1M Direct Attach Cable [Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	2	each	641524.00	6415.24	647939.24	1295878.48
379	SITC of 24 x 10/100/1000BASE-T PoE ports 4 x Gigabit RJ45/SFP Combo ports Advanced L2 switching and security features L2+ Static Routing Optional "standard mode" or "surveillance mode" management user interface 193 W PoE budget Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	91	each	31680.00	316.80	31996.80	2911708.80
380	SITC of Maximum distance of up to 10 km Hot-pluggable Single-mode fiber 1000BASE-LX (IEEE 802.3z standard) Duplex LC connector MSA, RoHS-compliant [Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	182	each	4754.00	47.54	4801.54	873880.28
<b>IPABX SYSTEM</b>							
381	SITC of Digital / PCM / TDM EPABX System having SMT design, system with flexible universal slots. Inbuilt Auto attendant facility, Minimum 15 Nos. conference, Analog extension line, Calling GSM, E&M line, PRI / EI & VOIP program me through Analog telephone digital key from Ethernet, public address cord, shall have unrestricted simultaneous dialing facility, QSIG protocol on PRI, 95 / STD / ISD / Local-Locking, Class of Service, Quick Dial-Single Digit dialing of any two external number, Once only ring device, Chairman / Secretary - Do not disturb Facility, Power Down Mode, Hot Line, Hot Outward Dialing, Day Night Mode, Auto Call Back, Barge-in, Call Pick Up & Call Transfer, Call transfer while Ringing with Voice Guide System, (DISA), Caller ID (CLI), CLI Base ECF, CLI Base routing Internet Ready Port, External Music Port, Call Budgeting, Call Most Calculation (ASMDR), DID Direct Inverse Dialing, External Music Input, Fax Homing, Global Directory Printing with following capacities [[Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]						
	[E] No of Extension 128, No of Junctions 24, No of expandable ports : 512, Operators Console - 01 Compatible : ISDN and Networking	4	each	172878.00	1728.78	174606.78	698427.12
382	Providing and erecting IP Phone with display with all IP system supported [[Approved by Competent Authority i.e. not Below the rank of Executive Engineer ]	435	each	5594.00	55.94	5649.94	2457723.90
<b>Fire Detection &amp; PA System</b>							
383	Supplying, installation, testing & commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required.	1453	each	2546.00	25.46	2571.46	3736331.38

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
384	Supplying, installation, testing & commissioning of intelligent addressable thermal detector with rate of rise cum fixed temperature thermistor complete with base as required.	133	each	2429.00	24.29	2453.29	326287.57
385	Supplying, installation, testing & commissioning of addressable fire control module complete as required.	80	each	2675.00	26.75	2701.75	216140.00
386	Supplying, installation, testing & commissioning of fire fighter telephone handset complete as required.	10	each	5098.00	50.98	5148.98	51489.80
387	Supplying, installation, testing & commissioning of fire fighter phone jack complete as required.	31	each	1431.00	14.31	1445.31	44804.61
388	Supplying, installation, testing & commissioning of addressable horn cum strobe complete as required.	31	each	3120.00	31.20	3151.20	97687.20
389	Supplying, installation, testing & commissioning of addressable manual call point complete as required.	43	each	3443.00	34.43	3477.43	149529.49
390	Supplying, installation, testing & commissioning of intelligent interface unit BACnet/ Modbus protocol i.e. supplying communication links between building management system and fire alarm control panel complete as required.	1	each	166277.00	1662.77	167939.77	167939.77
391	Supplying, installation, testing & commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.	645	each	259.00	2.59	261.59	168725.55
392	Supplying, installation, testing & commissioning of fault isolator complete with base as required.	1586	each	2910.00	29.10	2939.10	4661412.60
393	Supplying, installation, testing & commissioning of central graphical fire alarm management system to centrally monitor and operate the fire alarm system complete as required.	1	each	178190.00	1781.90	179971.90	179971.90
394	Supplying, installation, testing and commissioning of micro processor based intelligent addressable main fire alarm panel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics/ LCD display with touch screen or other keypad and minimum 4000 events history log in the non volatile memory (EPROM), power supply unit (230 ± 5% V, 50 Hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger. The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evacuation system (which is part of the schedule of work under SH: PA System) and shall be complete with all accessories. The panel shall be compatible for IBMS system with open protocol BACnet/ Modbus over IP complete as per specifications.						
	Ten Loop Panel	2	each	404147.00	4041.47	408188.47	816376.94
395	SITC of Controller Heart of the Plena Voice Alarm System EN 54-16 certified Built-in message manager and 240 W amplifier Six-zone outputs 6 emergency and 6 business triggers [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	1	each	174724.00	1747.24	176471.24	176471.24
396	SITC of Ceiling speaker, 6W, metal [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	304	each	643.00	6.43	649.43	197426.72
397	SITC of Power amplifier, 2x500W 2 × 500 W class-D power amplifier (70/100 V output) Low power consumption in standby mode Excellent sound quality, high signal-to-noise ratio EN 54-16 and ISO 7240-16 system certification [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	4	each	217686.00	2176.86	219862.86	879451.44
398	SITC of Call station for 6-zone Stylish six-zone call station, intended for LBB 1925/10 system pre-amplifier Unidirectional condenser microphone on flexible stem Six zone selection keys, all-call key, and momentary PTT-key for calls Selectable gain, speech filter, and limiter for improved intelligibility Selectable priority levels and different pre and post-call chimes LED indications for zone selection, system activity, and call station status [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	1	each	43106.00	431.06	43537.06	43537.06
399	Providing & erecting 16 gauge HGS conduit pipe (as per IS) painted black surface/concealed of following size complete to be erected on/in wall or ceiling with erected with necessary saddles, screws, bends, junction boxes etc. with following (Nominal Bore) dia of pipes, in approved manner as directed						
	25 mm	16000.00	metre	107.00	1.07	108.07	1729120.00
400	Supplying and drawing of cable Fire Retardant PVC insulated copper conductor cable in the existing surface /recessed steel conduit of following pairs, cores and size including connections and interconnections etc. as required.						
	speaker cable Single pair, 2-core, 1.5 sqmm	4500	each	52.00	0.52	52.52	236340.00
401	Supplying and drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/PVC as required.						
	2 x 1.5 sq. mm	15000.00	metre	65.00	0.65	65.65	984750.00
	<b>CCTV System</b>						
402	Supplying Installation Testing and Commissioning of 5/6MP IP IR Dome Camera having following specifications and features etc :- 1) Type of Camera: Dome Camera 2) Image Sensor: 1/2.8" or better progressive Scan CMOS get color image even at night condition 3) Signal System: PAL/NTSC 4) Minimum Illumination: 0.008Lux@ F1.4, AGC ON, 0 lux with IR or better 5) Imaging: 1/3s to 1/30000s Shutter Support, Auto Gain Control, White Balance- Auto, Back Light Compensation, Multi zone Privacy Masking, HLC, Digital Watermarking.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	6) On Screen Display: Camera should display Camera title, Date & Time in live & recorded video both. 7) Signal to Noise Ratio: > 50 dB 8) Day & Night: True Day & Night High Performance Mechanical IR cut filter with auto switch, IR Source- Inbuilt IR LED's with effective distance upto 50 Mtrs integrated IR 30 Mtrs for colour view in night. 9) Video Compression (Minimum): H.265 or better, Audio:- G.711U/A, G.711Mu, G.726, AAC, G.723 10) Wide Dynamic Range: WDR (120dB or more) 11) Digital Noise Reduction: DNR (2D/3D) On/Off 12) Streaming: Triple streaming, configurable 13) Video Streaming & Frame Rates: Triple streaming configurable Main stream: 5/6MP @25/30 fps, Sub streams: D1@25/30 fps or better						
	14) Image Setting: Rotate Mode, saturation, brightness, contrast, sharpness adjustable through client software or web browser 15) Profile Management: User configuration import, export 16) Security: User Authentication, Water Marking 17) Onboard Storage: Camera should support built-in Micro SD/SDHC/SDXC Card slot upto 512 GB. It should be supplied with minimum 128GB memory Card. 18) Recording Management: Format SD, overwrite, storage management, video to NAS device,						
	19) Edge Analytics : Tripwire, Intrusion, Motion Detection 20) Alarm Trigger : Motion/tampering detection; network disconnection detection; IP conflict detection; memory card state detection; memory space detection 21) Alarm Support: It should have 1/1 Alarm In/ Out Port 22) Audio Support: It should have 1x Built-In Mic and 1/1 Audio In/ Out Port for external Mic. and Speaker (As per site requirement) with G.711U/A/ G.711Mu/ AAC/ G.726 audio compression 23) Network Protocol: SFTP, IPv6, IPv4, DNS,RTCP, NTP, RTP, HTTP, HTTPS, SNMP TCP/IP, PPPoE, NFS, UDP, ICMP, SSL, DHCP, SMTP, RTSPS, unicast,						
	24) System Capability: ONVIF 25) VMS: Camera shall support open source VMS 26) Cyber Security: trusted boot, AES 256-bit Encryption, Configuration encryption, trusted execution, Digest, security logs, , account lockout, video encryption, IP/MAC filtering, HTTPS, trusted upgrade. 27) Ethernet: 1 RJ 45 10/100 Ethernet port 28) Power Input: The camera should support simultaneous dual power input—12 VDC (via power adapter) and PoE—to ensure continuous operation in the event of a failure in one power source.						
	29) Power Requirement: 12VDC/24VDC/PoE (802.3af)/ePoE 30) Enclosure: IP67 weather proof, IK10 31) Operating Condition: Ambient Temperature:- (-) 05°C to 50°C, humidity 95% (max) (non-condensing) 32) IR life: 40000 hours or higher 33) Video Bit rate: 32 KBPS - 8 MBPS or better 34) Standards: BIS with ER, STQC Certified, CE, FCC and RoHS						
	5MP/6MP IP IR 2.7 to 4 mm ~12 to 13.5mm or better Varifocal Motorized lens Dome Camera.	60	each	22875.00	228.75	23103.75	1386225.00
403	Supplying Installation Testing and Commissioning of 5MP/6 MP IP IR Bullet Camera having following specifications, type of lens and features etc :- 1) Type of Camera: Bullet Camera 2) Image Sensor: 1/2.8" or better progressive Scan CMOS get color image even at night condition 3) Signal System: PAL/NTSC 4) Minimum Illumination: 0.006Lux@ F1.4, AGC ON, 0 lux with IR or better 5) Imaging: 1/3s to 1/30000s, Auto Gain Control, White Balance- Auto, Back Light Compensation, Multi zone Privacy Masking, HLC, Digital Watermarking.						
	6) On Screen Display: Camera should display Camera title, Date & Time in live & recorded video both. 7) Signal to Noise Ratio: > 50 dB 8) Lens Type & Focus: as given below. 9) Day & Night: True Day & Night High Performance Mechanical IR cut filter with auto switch, IR Source- Inbuilt IR LED's with effective distance upto 50 Mtrs integrated IR and 30 Mtrs for colour view in night. 10) Video Compression (Minimum): H.265 or better, Audio:- G.711U/A, G.711Mu, G.726, AAC, G.723						
	11) Wide Dynamic Range: WDR (120dB or more) 12) Digital Noise Reduction: DNR (2D/3D) On/Off 13) Streaming: Triple streaming, configurable 14) Video Streaming & Frame Rates: Triple streaming , configurable Main stream: 5MP/6MP @25/30 fps, Sub streams: D1@25/30 fps or better 15) Image Setting: Rotate Mode, saturation, brightness, contrast, sharpness adjustable through client software or web browser 16) Profile Management: User configuration import, export 17) Security: User Authentication, Digital Water Marking 18) Onboard Storage: Camera should support built-in Micro SD/ SDHC/SDXC Card slot upto 512 GB. It should be supplied with minimum 128GB memory Card. 19) Recording Management: Format SD, overwrite, storage management, video to NAS device,						
	20) Edge Analytics: Tripwire, Intrusion, Motion Detection 21) Alarm Trigger : Motion/tampering detection; network disconnection detection; IP conflict detection; memory card state detection; memory space detection 22) Alarm Support: It should have 1/1 Alarm In/ Out Port 23) Audio Support: It should have 1x Built-In Mic and 1/1 Audio In/ Out Port for external Mic. and Speaker (As per site requirement) with G.711U/A / G.711Mu/ AAC/ G.726 audio compression 24) Network Protocol: SFTP, IPv6, IPv4, DNS,RTCP, NTP, RTP, HTTP, HTTPS, SNMP TCP/IP, PPPoE, NFS, UDP, ICMP, SSL, DHCP, SMTP, RTSPS, unicast,						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	25) System Capability: ONVIF 26) VMS: Camera shall support open source VMS 27) Cyber Security: trusted boot, AES 256-bit Encryption, Configuration encryption, trusted execution, Digest, security logs, account lockout, video encryption, IP/MAC filtering, HTTPS, trusted upgrade. 28) Ethernet: 1 RJ 45 10/100 Ethernet port 29) Power Input: The camera should support simultaneous dual power input—12 VDC (via power adapter) and PoE—to ensure continuous operation in the event of a failure in one power source. 30) Power Requirement: 12VDC/24V DC/PoE (802.3af)/ePoE						
	31) Enclosure: IP67 weather proof, IK10 32) Operating Condition: Ambient Temperature:- ( )05°C to 50°C, humidity 95% (max) (non-condensing) 33) IR life: 40000 hours or higher 34) Video Bit rate: 32 KBPS - 8 MBPS or better 35) Standards: BIS with ER, STQC Certified, CE, FCC and RoHS						
	5MP/6MP IP IR 2.7 to 4 mm ~12 to 13.5mm or better Varifocal Motorized lens outdoor Bullet Camera	96	each	22875.00	228.75	23103.75	2217960.00
404	Supplying Installation Testing and Commissioning of following Channel Network Video Recorder (NVR) with camera licenses to record for all channels having specifications and features etc as mentioned below : 1) Network Video Recorder Embedded/ Installed OS (Linux) along with Camera Licenses to record per NVR and to provide a live view, storage and simultaneously Multi-channel playback of all IP camera or more and must be ONVIF with minimum support of 384 Mbps incoming Bandwidth. 2) NVR should support video compressions : H.265 or better, H.264, MJPEG. 3) Must support 1 channel RCA Input, 2 channel RCA Output for Two-way Talk with G.711U/A, G.711u, PCM, G726 audio compressions. 4) Intelligent auto power on when power resumes after power outage.						
	5) Storage: It should support minimum 8 SATA Slots with 20TB capacity/ Slot and RAID support of RAID 0/1/5/6/10. 6) Connectivity Interface : 2 Nos. x 10/100/1000 Mbps Ethernet Ports, 1x RS485, 1x RS232, 1x eSATA Port 7) Backup Interface : Its should have 4 Nosx USB port (2x USB3.0, 2xUSB2.0) 8) Video Output Ports: 2x HDMI and 2 VGA 9) Alarm Ports: It should have 16/8 Ch In/ Out ports to connect various type of external sensors and output devices like hooter/ Siren etc. 10) Email & SMS Alert options: Option for SMS/ Email Alerts to minimum 5 designated mobile number for power failure, HDD failure, vandalism, tampering, network disconnection and panic						
	11) Web & Mobile Application: Web, Mobile app ( For iPhone, iPad, Android Phone) for alerts and viewing. 12) Protocols: HTTP, HTTPS, TCP/IP, IPv4/IPv6, UDP, DHCP, DNS, SMTP, UPnP, IP Filter, PPPoE, FTP, DDNS, Alarm Server, IP Search, Multicast, Auto Registration, ONVIF (Profile T, Profile S, Profile G), CGI, SDK and OEM Cloud for remote monitoring without any public IP need. 13) Standards: CE, FCC, RoHS, BIS Certified 14) Power Supply : Should support AC100-240V, 50/60Hz Power supply.						
	15) Operating Condition : -5°C to 50°C, humidity 90% (max) (non-condensing) 16) The VMS application shall support all the features & functionalities of the offered cameras. 17) VMS should consist Licenses for all channels to record Cameras with General, motion detection, intelligent, alarm and POS recording modes. VMS should be provided with Camera Licenses, with no dependency of VMS licenses by binding with the MAC address of the cameras to achieve the functionality. 18) The NVR OEM shall be responsible for providing a mobile application compatible with both Android and iOS devices, enabling remote monitoring and playback of cameras/NVR footage.						
	19) The OEM must provide its own DDNS server hosted in India, eliminating the need for a public IP address for remote monitoring over the Internet. 20) Must support Continuous, Alarm, Motion, Instant, Panic Recording Mode 21) It should support Resolution: 32MP; 24MP; 16MP; 12MP; 8MP; 5MP; 4MP; 1080p; 720p; D1; CIF; QCIF 22) When alarm recording is enabled and an event occurs, you can click the alarm icon on monitoring page to view the alert details. The snapshot function is supported on monitoring and playback page						
	23) The Network Video Recorder (NVR) shall be configured to send email whenever a system message is created or an alarm event occurs. The email server shall be a valid SMTP server. Each recipient email address shall be configured to receive any combination of critical, warning, or informational messages or alarm notifications. When an alarm occurs, the email message includes the NVR name, time of alarm and a list of camera that is configured to record upon alarm 24) It should have Web and GUI interface. 25) Built-In Artificial Intelligence: NVR should have built-in AI :- - 2 Channel face detection and recognition, - Minimum 4 Channel perimeter protection, - Minimum 8 Channel Smart Motion Detection						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	26) Face Recognition Database Capacity: It should support total Blacklist and Whitelist capacity of Minimum 20,000 Faces or more with Face Detection speed of 12 face images/sec and facility to add Name, gender, birthday, address, credential type, credential No., countries & regions and state to each face image. 27) Face & Human Attributes Search: Search Pictures/ Video by Gender, age group, glasses, expressions, face mask, beard, Top color, top type, hat, bag, age, gender and umbrella. 28) ANPR Capability: It should support ANPR Camera with License plate, plate color, vehicle body, vehicle model, vehicle logo, calling, seatbelt, vehicle registration location etc vehicle attributes.						
	29) Alarm Notifications based on: Motion detection, video tampering, video loss, scene changing, PIR alarm, Camera external alarm, Face detection, face recognition, perimeter protection (intrusion and tripwire), ANPR, people counting, stereo analysis, crowd distribution, heat map, Disk Full, Storage Error, IP Conflict and abnormal behavior of fan, cybersecurity exception. 30) Alarm Notification should be linked with Recording, snapshots, Camera external alarm output, buzzer, logs, presets and email.						
	31) General AI Based Search: Search Pictures by channel, time, event type, target classification (Fall Detection, People Approach Detection, People No. Exception Detection, People Staying Detection, Violence Detection. 32) Smart playback function: Should support smart search for the selected area in the video and smart playback to improve the playback efficiency 33) VCA (Video Content Analytic): Should support multiple video contented analytics based on camera analytics 34) Analytics by NVR: Perimeter protection and face recognition						
	32 Channel Network Video Recorder (NVR) having display split :- Main screen: 1/4/8/9/16/25/32(36), 2nd screen: 1/4/8/9/16	1	each	54902.00	549.02	55451.02	55451.02
	64 Channel Network Video Recorder (NVR) having display split :- Main screen: 1/4/8/9/16/25/36/64, 2nd screen: 1/4/8/9/16	2	each	70000.00	700.00	70700.00	141400.00
405	Supply, Installation, Testing and commissioning of Monitor, 55" LED high resolution monitor with high performance 240VAC, 50 Hz. 24x7 for spot display including all accessories as per specifications and as required to complete the system.	4	each	78785.00	787.85	79572.85	318291.40
406	Supply, installation, testing & commissioning of Client Workstation as per following specifications: Intel Core i7-8700K or better, 4.2GHz, OS - Genuine Microsoft Windows 10 Enterprise/IOT 64 Bit, RAM - 16GB, OS - 480 GB SSD/SATA, Graphic Card - In-built Processor Graphics (GPU): Intel® HD Graphics 630 or Intel Q470 Processor, supporting 2 Monitors, 01 LAN 01GBPS, Audio IN & Out, USB3.0, Keyboard and Mouse, associated cables etc complete. Approved Makes : Pelco / Avigilon / Axis / Allgovision / Dell / HP	4	each	194888.00	1948.88	196836.88	787347.52
407	Supplying, Installation, Testing and Commissioning following capacity Surveillance grade Hard Disk with upto 256MB/s Transfer Rate, 256 MB Cache, 7200 RPM Disk Speed, 3.5 inch form factor, SATA Interface, BSMI, ICES-003/NNB-003, CE, FCC, KC, Maghreb, RCM, UKCA, VCCI, CB-Scheme, TUV, UL Certifications. 10TB (Terabytes)	30	each	21015.00	210.15	21225.15	636754.50
408	Supply, Installation Testing & Commissioning 15 Mtr. HDMI Interface Cable as per the detailed Specifications supports transmission of 4K Signals as per the detailed Specifications	4	each	1760.00	17.60	1777.60	7110.40
	<b>LIFTS</b>						
	Supplying, Erecting, Testing & Commissioning the passenger / stretcher lift having following main features: The Rates of the following items are for the lift without Machine room (MRL type) <b>(A) GENERAL DESCRIPTION OF LIFTS.</b> [1] GEAR LESS LIFT DRIVE (MRL) comprising of High Starting torque Lift 3 phase 440 V A. C. Permanent Magnet Synchronous motor of proper rating with high efficiency shall be used. [2] Micro processor based / PLC, ACVVVF, vector control drive with encoder feedback closed loop system shall be used for lift car and door operation which shall be full collective selective operation hall call demand response, UP/DOWN hall stops, Main, Up/ Down Contactor with overload and phase reversal relay and safety controls. [3] Car with M S platform with bracings of adequate size and to sustain the impact load cabin + passenger with safety factor of fire for steel and side panels of Stainless steel of sheet of grade 304 duty. Car ceiling will be S.S. finishes with aesthetic appearance with LED ceiling lights. Car flooring shall be of anti skid PVC with choice of colour of engineer in charge. Car doors shall be of stainless steel grade 304, hairline finish with centre opening / telescopic automatic doors. Car panel will also be S.S. 304 finished with emergency stop device, mechanical door safety device, facility of auto/ attended mode.						
	All car panel buttons and all floor switches must be with brail language as per lift act. [4] All landing doors must be fire rated for 2 hour shall be fully automatic centre opening/ telescopic opening made of hairline finish steel grade of 304 with key holes and infrared curtains with Unlocking facility from outside [5] Appropriate battery operated emergency light in the car along with alarm switch shall be provided. Also, Emergency Light & Fan should start immediately without any Time Delay as soon as power fails. [6] Digital scrolling indicator system for up-down arrow along with floor position indicator shall be provided inside the car and at all floors. [7] Full height infra red curtain with multiple cross / crossing light beams shall be provided. [8] Automatic Rescue Device (ARD) shall be provided accordingly of passenger capacity with Manual Rescue Operation ( Manual Cranking Facility). [9] Audio visual indication in the lift car showing over loading shall be provided such that doors kept open till excess load is removed. [10] Spring buffers/PU Buffers shall be provided. [11] Car fan as per passenger capacity with automatic sleep timer shall be provided. [12] Voice annunciator with suitable music shall be provided in lift car. [13] Self diagnostics system for operational and safety parameters shall be provided in control panel.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	[14] Mechanical over speed governor with governor calibration as per actual site parameters and submission of calibration certificate submission, door key holes in the floor doors, fireman switch shall be provided.[15] Lift machine hoisting arrangement in the lift machine room and monkey ladder for lift pit should be provided by the lift agency, along with the other steel structure works, foundations for the machine etc...[16] In the hoist way fascia plate shall be provided without any extra cost, where ever required as / if directed by engineer in charge.[17] Permanent wiring with necessary safety devices like RCCB in all circuit, Over Voltage Under Voltage protection and THD eliminator in circuit for lift machine room and lift well with proper numbers of light points, with fixtures, exhaust fan and plug points shall be provided by the agency. Only 3 phase Power Supply shall be made available by department in lift machine room. Necessary Earthing as per Lift Act/Rules shall be arranged by Lift Agency. [18] Any civil/ electrical works for additional and alteration in lift shaft and machine room related to erection of lift shall be made by lift agency without any extra cost. (granite/marble fixing around all landing door openings are not in lift agency's scope.)						
	[19] Agency has to provide all working drawings and documents and liaison services for obtaining all necessary permission from lift inspector and other authorities.[20] acrylic transparent licence/display A4 size holder in lift car[20A] As per statutory requirement of Govt. Of Gujarat lift & escalator act 2000, lift agency has to provide 1. Car top safety barricade 2. Push & talk communication system.3. Fireman's switch operation at Ground Floor. 4.carrying out third party lift inspection during/after lift erection and provide report by third party authorized by concern licensing authority 5.agency has to provide third party insurance upto completion of free maintenance period and submit the document for the same.[21] Car Panel Operating Buttons with floor position indicator/buttons must be of Auto Glow type clearly visible when view from inside cabin. [22] For Physically Handicapped person Full Length Handrails of hairline finish steel grade of 304 should be provided at appropriate height on the Rear & Side Wall Panels in Lift Car.						
409	20 passengers Basement, Ground plus 9 upper floors with Rated Speed of 2.0 /2.5 m/sec with micro price/PLC control and ACVVVF. drive						
	(B) With General PLUS ADDITIONAL SPECIAL FEATURES attached herewith. Prem. Cat.	2	each	3101313.00	31013.13	3132326.13	6264652.26
410	13 Passengers, Basement, Ground plus 9 upper floors with Rated Speed of 2.0 /2.5 m/sec.,						
	(B) With General PLUS ADDITIONAL SPECIAL FEATURES attached herewith. Prem. Cat.	1	each	2689470.00	26894.70	2716364.70	2716364.70
411	1 Ton Goods Lifts, Basement, Ground plus upper 4 floor with rated speed of max 1 MPS with all necessary ascesories complete as required.	1	each	2690322.00	26903.22	2717225.22	2717225.22
412	1 Ton Goods Lifts, Basement, Ground plus upper 9 floor with rated speed of max 1 MPS with all necessary ascesories complete as required.	1	each	3128486.00	31284.86	3159770.86	3159770.86
	<b>SUB HEAD-XI - SUBSTATION EQUIPMENTS</b>						
413	Design, manufacturer, Supply, installation, testing and commissioning of Oil type transformer ONAN cooling Type 2500 KVA 11/0.433 KV,3 phase, 50Hz, Dyn 11 vector group, double wound copper, class A insulation, indoor type Transformer with approximately 6.25% impedance subject to tolerance as per IS, ON Load tap changer, operation on HV side in steps of ± 5% to -7.5%, @1.25%, having cable end boxes on HV side suitable for 3x300 Sq mm XLPE cable of 11KV (E) grade and 4000 Amp TPN Sandwich Bus Duct arrangement on LV side with neutral brought out separately, Marshelling Boxes and other safety equipments etc. & suitable for ambient 50°C temprature. All Relays, Contacts & CT Terminal to be wired upto marshelling Box suitably mounted on M.S. channel i/c supplying and grouting of suitable M.S. Channel with all accessories and confirming to Latest IS/IS:1180Part-1/2026 & complete in all respects as required at site. Transformer losses shall be as per Latest ECBC Norms.	1	each	3953802.00	39538.02	3993340.02	3993340.02
	<b>Main L.T. PANEL IN ESS</b>						
414	Design, manufacture, testing at works, supply, installation, testing and commissioning of MODBUS ready SCADA Compatible 415V LT Panel Tested Assembly – TTA, CPRI /Independent international test house tested for all the tests as per IEC61439-1 & 2 and internal arc tests as per IEC 61641, 50kA for 0.3 SEC. Copies of the test reports & certificates shall be submitted with the tender. LT Panel shall also be tested of design as per Seismic Zone 4 of IEC 60068-3-3 requires compliance against 0.4g acceleration. Panel shall be rated for Impulse withstand capability as per IEC-61439. For operator safety IP2 X (touch proof) protection to be available even after opening the feeder compartment door. The compartmentalization to be achieved by using metal separators, use of PVC sheet / Hylem sheets shall not be allowed.						
	Main LT Panel shall be form 4b, for form of separation and rest with form 3b ,only metallic covers shall be used, Hylem / PVC sheets shall not be allowed. The panel shall be FRONT operated, suitable for bus duct entry for transformer incomings. Outgoing panels shall be suitable for cable entry from the top/bottom. The type tested design of the Switchboard shall be proven design from the main switchgear manufacturer (OEM). All switchboards shall be supplied by authorized system integrator and design, design warranty, including performance warranty on the switch boards shall be from original equipment (switchgear) manufacturers.						
	Note : ALL the Panels should be SCADA Compatible for Monitoring & Control on Ethernet and should include all accessories as required.Each breaker in Main LT Panel & Emergancey panel shall have Zone Selective Interlocking feature.						
	<b>INCOMING FROM TRANSFORMER (2500 KVA)</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	1 No. 4000A, 4-pole EDO type ACB having release with following functions :Protection for O/C, S/C, E/F and Metring for Current-I1,I2,I3,In,Iavg,Imax, Voltage- Vph, Vline,Power- KW, KVA, KVAR, Power factor, Maximeters /minimeters Energy –KWh,KVAh, KWArh, Demand current- Ph & Neutral, Demand power-KWh, Under & over frequency, current unbalance, reverse power, phase seq. reversal, Last 10 faults with date and time stamping,Last 10 alarms with date and time stamping, Current and Voltage Harmonics till 31st multiple with Waveform capture. All release data should be available over MODBUS.						
	TNC breaker control switch.						
	ON, OFF, Trip, Ready to close and RYB indication lights with backup MCBs of 2A.						
	96 x 96 sq.mm display module mounted on panel door directly connected from release to display all parameters of ACB/MCCB.						
	<b>Bus Coupler</b>						
	1 No. 4000A, 4-pole EDO type ACB having microprocessor release with following functions :Protection for O/C, S/C, E/F and Last 10 faults with date and time stamping,Last 10 alarms with date and time stamping, All release data should be available over Modbus.						
	ON, OFF, Trip, Ready to close and RYB indication lights with backup MCBs of 2A.						
	<b>Bus Bar</b>						
	Set of 4000 Amps rating TPN copper Bus Bars of suitable length shall be provided for entire length of panel board. Busbar Design suitable for Temperature rise 40 degree over & above ambient temp. of 45 degrees						
	<b>Outgoing Panels</b>						
	All ACB shall have release with following functions :Protection for O/C, S/C, E/F and Metring for RMS values of highest current, Bargraph for % loading, Ammeter, Current- I1,I2,I3, In,Iavg,Imax, Voltage- Vph, Vline, Power- KW,KVA, KVAR, Power factor, Maximeters/minimeters, Energy –KWh, KVAh, KWArh, Demand current- Ph & Neutral, Demand power-KWh. The electrical endurance of ACB shall be 10000 operations upto 1600 AMP ACB and 6000 operation upto 3200 AMP ACB. All release data should be available over MODBUS. All MCCBs shall have Microprocessor release with following inbuilt functions :Protection for O/C, S/C, E/F.						
	<b>Bus Section - C</b>						
	2000 amp, 50KA FP ACB - EDO-----1 Nos.						
	1600 amp, 50KA FP ACB - EDO-----1 Nos.						
	800 amp, 50KA FP ACB - EDO-----6 Nos.						
	400 amp, 36 KA FP MCCB -----2 Nos.						
	200 amp, 36 KA FP MCCB -----2 Nos.						
	<b>Metering &amp; Indication for each outgoing feeders.</b>						
	96 x 96 sq.mm display module mounted on panel door directly connected from release to display all parameters of ACB/MCCB.						
	Set of ON/OFF/Trip/Trip Circuit healthy/ready to close(for ACB) lamp with control MCBs of 2A.						
	<b>Main LT Panel ESS (TTA Type) as per specifications and details above complete as required.-</b>	1	set	4623655.00	46236.55	4669891.55	4669891.55
415	Supply, Installation, testing and commissioning of HYBRID APFC Panel, 3 phase 4 wire, 415 V, 50 Hz AC System for Ambient temperature -5°C to +40°C of following capacity with passive solution of 60% capacity and active solution of 40% capacity, 3Phase 4 wire Hybrid Power Factor Correction Solution (with arrangement for neutral current balance) to achieve >0.99 lag and TDDI/THDV values within IEEE recommended limits.APFC should be designed as per IS 16636 Or IEC 61921. The active section and passive section shall work in sync to give optimized output. The degree of protection of passive section should be IP 42, and of active section should be minimum IP 21.The switching device for APFC passive section should be through capacitor duty contactor and for the active compensation system shall be IGBT based with 3 level topology having 12 IGBT in inverter circuit. The active compensation system should filter harmonics from 2nd to 50th individual harmonic order and shall be selectable for the entire range. The active compensation system should have feature to improve PF correction and harmonic filtration having response time < 100 Micro second.						
	The hybrid panel shall be indoor type floor mounted free standing totally enclosed, extensible, fabricated in compartmentalised designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade ( RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section (capacitor and reactor), front and rear access, having suitable current carrying capacity, extensible TPN Aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports,bottom base channel of MS Section,						
	fabrication shall be done in transportable section, entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature rise not more than 5°C from ambient, interconnections, connections with 14% detuned reactor and heavy duty 525 V ISI marked Impregnated MPP(Metalized Polypropylene) Capacitor (IS 13340 Part -1 & 2) APFC Panel shall be in compliance with IS -16636 & CPWD Specifications etc. as per below details.						
	(A) Incomers						
	Suitable capacity MCCB/ACB (Upto 300 KVAR, MCCB and above 300 KVAR, ACB ) Microprocessor base with O/C, S/C, E/L release of TPN 50KA breaking capacity (Ics=Icu), ON, OFF, Trip, R, Y, B - LED Indicating Lamp set alongwith required Instruments and accessories with extended rotary handel and door interlocking arrangment. Current rating of the Incomer in ampere shall be APFC Panel rating in KVAR x 1.4 x 1.5 or Nearest higher standards rating.						
	(B) Instruments & Indications						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	a)For Passive Section : i) 3-Phase current sensing APFC microprocessor relay/controller , advance 12/16 stages (12 stages for over all capacity of panel (active + passive) below 500 KVAR and 16 stages 500 KVAR & above) and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA,KVAR, THD-V , THD-I, harmonics up to 31 level. ii) Auto Manual Selector switch, auxiliary contactors with timer for delay in manual mode. iii) Digital Multi function meter with LED Display for VA, PF, KW, KVA, KVAR, THD-V & I, Frequency.						
	iv) Suitable rating control transformer shall be provided for control and indication circuit. v) All components like control transformer, meter, relay and indicating lamp shall be protected by using suitable rating individual MCB's. vi) Wiring of the control circuit shall be done by using 2.5 sq mm, FRLS/HFFR 1100 V grade, PVC insulated multi stranded copper control wire. vii)Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.						
	b) For Active Section : Dedicated HMI (Human Machine Interface) (Minimum 7 inch display) for controlling and communication and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V , THD-I, harmonics up to 50th level. Communication Ethernet /RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.						
	800 KVAR	1	each	3447283.00	34472.83	3481755.83	3481755.83
	<b>BUS DUCT INDOOR TYPE-(As per IEC 61439-6)</b>						
416	Providing & erecting sandwiched type bus duct having following specification: sandwich type busbar for use as feeder busbar for interconnection between separate electrical equipment / load centers and for use as plug in busbar risers. The busbar shall be suitable for operation in a 690V / 1000V system with frequency of 50 Hz system can be either earthed or unearthed, impulse voltage should be 12 KV; Standard						
	(A) Aluminium Bus						
	(i) 4000 A, Capacity (TR to LT PANEL)	30.00	RM	33348.00	333.48	33681.48	1010444.40
	<b>H.T. / L.T. CABLES, CABLE TERMINATIONS AND CABLE TRAY</b>						
417	Supply of following size of 11 KV XLPE insulated aluminium conductor earthed and armoured cable conforming to IS 7098 complete as required.						
	3 Core, 300 sq.mm (from HT Panel to Transformer)	40.00	RM	3292.00	32.92	3324.92	132996.80
418	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.						
	Above 120 sq. mm and upto 400 sq. mm	30.00	mtr	422.00	4.22	426.22	12786.60
419	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.						
	Above 120 sq. mm and upto 400 sq. mm	10.00	mtr	144.00	1.44	145.44	1454.40
420	supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kv grade as required.						
	300/400 sq. mm	2	each	14758.00	147.58	14905.58	29811.16
	<b>LT CABLES</b>						
421	Supplying, Fixing with End Terminations of 400 sqmm single core 1.1 KV XLPE insulated copper conductor earthed and armoured cable conforming to IS 7098 complete as required.						
	Single Core, 400 sq.mm	440.00	RM	9999.00	99.99	10098.99	4443555.60
422	Providing and erecting XLPE (IS:7098) - BB ISI armoured cable multistrand aluminium conductor for 1.1 KV . To be laid on wall with necessary clamps or in existing trench / pipe of following size of cables.						
	(K) 3 1/2 core 400 Sq.mm ( 185 Sq. mm / 1/2 core)	2270.00	RM	1730.00	17.30	1747.30	3966371.00
	<b>END TERMINATIONS OF 1.1KV CABLES</b>						
423	Providing & fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with outgoing tails insulating tape etc. for following size of cables.						
	(J) 3 & 1/2 core 400 Sq. mm	20	each	366.00	3.66	369.66	7393.20
424	Solder less crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly climped with high pressure tool & connected to switchgear terminals with brass / cadmium plated nut bolts in an approved manner.						
	(L) 400 Sq.mm.	80	each	109.00	1.09	110.09	8807.20
	<b>CABLE TRAY / RCC PIPE</b>						
425	Providing & fixing approved make Perforated C type Cable tray, made from sheet steel. The cable tray should be single or double bended as per required and as per IS 2062 / 1079 and shall be coated with hot dip galvanizing as per IS 2629/4759 with max 17.5% perforation with coupler plate / fish plate and GI hardware like nut - bolt and washers etc. erection with necessary support included) as per specification and as per instruction of Engineer In charge.						
	(5) 300 mm X 50 mm X 2.0 mm thick	40.00	RM	616.00	6.16	622.16	24886.40
	(6) 450 mm X 50 mm X 2.0 mm thick	50.00	RM	794.00	7.94	801.94	40097.00
	(7) 600 mm X 50 mm X 2.0 mm thick	50.00	RM	997.00	9.97	1006.97	50348.50
426	Providing & laying RCC Hume pipe for cables to be laid at 90 cm below ground across the road crossing on or floor with necessary material in an approved manner and making the ground as per original.						
	(F) 100 mm dia.	10.00	RM	224.00	2.24	226.24	2262.40
	(D) 250 mm dia.	10.00	RM	293.00	2.93	295.93	2959.30
427	Providing & laying approved make ISI marked HDPE 6kg/cm2 (Class-3) as per IS:4984:1995 PE-80 to be erected at road crossing on or floor as directed for laying of cable. The pipes as following size of dia & weight per 6mtr.						
	63 mm inner dia For Fiber & Power cables	100.00	RM	247.00	2.47	249.47	24947.00
	110 mm inner dia For Fiber & Power cables	100.00	RM	725.00	7.25	732.25	73225.00
	<b>Fire Suppression system</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Supplying, installation, testing and commissioning of pre-engineered Automatic Clean Agent 3M Novec 1230 (UL Listed/ FM approved) Direct Low Pressure (DLP) System complete With DOT/PESO approved cylinder fitted with Automatic Valve. Complete System shall be Tested and Certified to LPCB/VDS/UL. (Makes : FireTrace / Kidde /Minimax)						
428	Supply, installation, testing and commissioning of 10LB. Novec-1230 DLP Assembly with automatic valve mounted on DOT/PESO approved cylinder, push in connector for tube, Mounting bracket etc.	2	Nos.	77650.00	776.50	78426.50	156853.00
429	Supply, installation, testing and commissioning of 5LB. Novec-1230 DLP Assembly with automatic valve mounted on DOT/PESO approved cylinder, push in connector for tube, Mounting bracket etc.	2	Nos.	63900.00	639.00	64539.00	129078.00
430	Supplying, installation, testing and commissioning of 2.5LB. Novec-1230 DLP Assembly with automatic valve mounted on DOT/PESO approved cylinder, push in connector for tube, Mounting bracket etc.	4	Nos.	41950.00	419.50	42369.50	169478.00
431	Supply, installation, testing and commissioning of UL listed Linear Pneumatic Heat Detection Tube ( operating temp at 120 Degree Centigrade, Colour-Red) For Automatic Fire Detection & Suppression.	70.00	mtr.	2000.00	20.00	2020.00	141400.00
432	Supply, installation, testing and commissioning of tee connection.	5	Nos.	2800.00	28.00	2828.00	14140.00
433	Supply, installation, testing and commissioning of elbow connection.	5	Nos.	2800.00	28.00	2828.00	14140.00
434	Supply, installation, testing and commissioning of end of line adapter with Pressure Gauge For charging & monitoring.	5	Nos.	4250.00	42.50	4292.50	21462.50
435	Supply, installation, testing and commissioning of Low pressure switch for monitoring system activation.	8	Nos.	9500.00	95.00	9595.00	76760.00
436	Supply, installation, testing and commissioning of Master control Unit with LED Flasher, Electronic Hooter, LED Indicator with provision for Integration with Fire Alarm Control Panel complete as required.	8	Nos.	8750.00	87.50	8837.50	70700.00
	<b>Earthing</b>						
437	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	8	each	12715.00	127.15	12842.15	102737.20
438	Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 SWG.	500.00	kg	77.00	0.77	77.77	38885.00
439	Providing and erecting required size Copper strip for earthing of H.T, OCB/ACB/Transformer LT panel board, motors etc. using copper clamp.	200.00	kg	787.00	7.87	794.87	158974.00
	<b>SUB HEAD-XII - SOLAR POWER GENERATION SYSTEM</b>						
440	Supply, Installation, Testing & Commissioning of following size of Grid Tied Solar Power Plant with Integrated, Input Reverse Polarity Protection Integrated, Insulation Resistor Detection Integrated, Residual Current Monitoring Unit Integrated, Output Over Current Protection Integrated, Output Short Circuit Protection Integrated, Output Over Voltage Protection Integrated, Protection Degree: IP65, User Interface LCD & APP,Datalogger & Communication: GPRS / Wi-Fi, Module Mounting Structure: The mounting (Rectangular pipe / square pipe / circular pipe) with requisite cross bars, nuts and bolts, etc. shall be Hot deep galvanized with minimum 80micron coating. The Rectangular / square /circular hollow pipe section used for the structure should have a minimum thickness of 2.0 mm. other than above, the material thickness should be minimum 2.5 mm. A certificate of a structural engineer certifying the strength and stability of the mounting structure to withstand the weight and wind speed of 150 km/hour throughout the life span of 25 years of the system, shall be submitted by the vendors. Hot Dipped Galvanized steel coils. suitable arrangement for base plate for foundation , solar panel mounting, the structure should be suitable for carry the load of solar panel,wiring, sprinkler system etc. with necessary foundation work/wall mount, j bolt, anchor fastner etc. the nut bolt used for installtion of stucture should be (SS 304) quality.						
	Solar Panels (ALMM approved): Frame Material : Anodized Aluminum alloy Frame With Twin Wall Profile, Front Cover : High Transmission Low-Iron Tempered Glass (AR Coated), High efficiency and positive power tolerance Pmax: 0/+5, Module Efficiency should be approx. 19.5%-22%, Normal operating temperature 45°C, Junction Box with Waterproof IP67 & MC4 Compatible and Enclosed with Bypass diodes, 100% Electroluminescence test to ensure error free Modules, Thep. temp. coefficient of the PV module shall equal or better than -0.45%/degree C. Solar PV modules of minimum fill factor 75% to be used. Unit Production:- More than 4.5 Unit /kw /day (Actual)(1Year Avg) With 10 year Product warranty and 25 year Linear Power Warranty includes all mechanical and electrical parameters of the Solar panel. Modules must be complied to the DCR(Domestic content requirements). The Ration of AC to DC is 5:6 for the Installation capacity which are given in AC KW.						
	Solar Inverter: MPPT Range: MPPT Range: 80-1000 V , Max efficiency: 97.5% - 98.9%, O/p Frequency: 50/60Hz, Operating Altitude (m) ≤4000, O/p Power Factor: ~1, O/P THDi: <3%, Operating Tempreture Range: -25~60°C, Integrated protection of Inverter are Anti-islanding Protection, Input Reverse Polarity Protection, Insulation Resistor Detection, Ground fault protection, Residual Current Monitoring Unit, Output Over Current Protection, Output Short Circuit Protection, Output Over Voltage Protection, PV array string fault Protection. Protection Degree: IP65, User Interface LCD & APP, Datalogger & Communication: GPRS / Wi-Fi. The ground clearance of the bottom most edge of solar panel shall not be less than 300 mm to 1200 mm or as per site's technical/feasibility requirement. a. Column -The minimum section (thickness) should be 60MM*40MM b. Rafter - The minimum section (thickness) should be 60MM*40MM c. Purlin - The minimum section (thickness) should be 40MM * 40MM Balane of System with necessary Swichgears (Suitabel size and protection of ACDB & DCDB), inter connecting wiring, earthing system as per the CEIG drawing approval, lightning arrester system as per the CEIG drawing approval, all liasoning work with various gov. dpartment like state nodal agency,DISCOM & CEIG is included in agency scope						
	(Excluding All charges namely GEDA Application fees, Solar connectivity Charges, Meter connectivity Charges, Meter testing Charges and system stability/strenthning charges.)						
	(E) Grid Tied Solar Power System: 51 - 100 kW (3 - phase)	100.00	Per KW	40256.00	402.56	40658.56	4065856.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
441	The all inclusive comprehensive annual maintenance contract cost covers yearly maintenance of solar Pv Modules, Inverter, wiring, earthing, switchgears, etc with material and labour cost including preventive maintenance. The cost covers entire installation. AMC also includes monthly site visit and inspection of project with submission of inspection and solar generation report. All parts should be replaced/ repaired if found faulty within specified time. Agency has to provide necessary licencing work for warranty, power, Bidirectional meter etc .						
	(D) 51KW-100KW System	100.00	PER KW	3814.00	38.14	3852.14	385214.00
	<b>DG SET</b>						
442	Supply, installation, Testing & Commissioning of 'Silent Type Diesel Generating set as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings:						
	<b>(A) Diesel Engine:</b>						
	Turbocharged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 Degree C, 50% RH & at 1000 Meter MSL, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528. The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications.						
	<b>(B) Engine mounted Instrument Panel fitted with and having digital display for following:</b>						
	(i) Start-stop switch with key						
	(ii) Water temperature indication						
	(iii) Lubrication oil pressure indication						
	(iv) Lubrication oil temperature indication						
	(v) Battery charging indication and Voltage indication						
	(vi) RPM indication						
	(vii) Over speed indication						
	(viii) Low lubrication Oil trip indication						
	(ix) Engine Running Hours indication						
	(x) Fuel Level						
	<b>(C) Alternator:</b>						
	Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation.						
	<b>(D) Base Frame &amp; Foundation:</b>						
	Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.						
	<b>(E) FUEL TANK:</b>						
	Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.						
	<b>(F) Exhaust System:</b>						
	Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor.						
	<b>(G) Starting System:</b>						
	12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be housed inside the acoustic enclosure of DG Set.						
	(H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure. The acoustic enclosure should be suitable for cable connection /connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications.						
	<b>(I) AMF Panel:</b>						
	Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reative Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminum) and control (copper) cabling of suitable size upto 15 meter between AMF panel, LT Panel and DG Set including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG Set OEM make etc. as per approved by Engineering in charge and including the following:						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip.						
	2. Auto/Manual/Test/Off selector switch						
	3. Protection for under and over voltage phase reversal (2 nos Over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay).						
	4. 3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering						
	5. Energy analyser unit to indicate current, Voltage( L-N & L-L), kW, kVA (Phase & Total), Frequency, KWH, PF						
	6. LED Indicating lamps for load on mains and load on set.						
	7. Fuse/ MCB for instruments.						
	8. Battery charger, complete with transformer/ rectifier, D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment.						
	9. Main supply failure monitor.						
	10. Supply failure timer.						
	11. Restoration timer						
	12. Control unit with three impulse automatic engine start/stop and failure to start lockout.						
	13. Impulse counter with locking and reset facility.						
	14. ON/OFF/Control circuit switch with indicator						
	15. Audio/Video annunciation for						
	(i) High water temperature						
	(ii) Low lubricating oil pressure						
	(iii) Engine over speed						
	(iv) Engine fails to start						
	(v) Full load/maximum load warning						
	16. Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories						
	17. Maintenance notification based on Engine Run Hour & due date						
	18. Load Management through PLC to achieve auto opening and closing of incomer breakers, bus coupler switching of essential panel , interlocking providing signal to AMF Panel for load status and AMF shall give command to DG Set to auto start / auto stop depending upon load status and requirement etc. and necessary hardware and software required to perform the operation shall be provided by the contractor including all control wiring.						
	<b>SITC of DG SET - 750 KVA, as described above and complete as per specifications.</b>	1	Set	5157718.00	51577.18	5209295.18	5209295.18
	<b>Emergency L.T. PANEL IN ESS for INCITE Block</b>						
443	Design, manufacture, testing at works, supply, installation, testing and commissioning of MODBUS ready SCADA Compatible 415V LT Panel Tested Assembly – TTA, CPRI /Independent international test house tested for all the tests as per IEC61439-1 & 2 and internal arc tests as per IEC 61641, 50kA for 0,3 SEC. Copies of the test reports & certificates shall be submitted with the tender. LT Panel shall also be tested of design as per Seismic Zone 4 of IEC 60068-3-3 requires compliance against 0.4g acceleration. Panel shall be rated for Impulse withstand capability as per IEC-61439. For operator safety IP2 X (touch proof) protection to be available even after opening the feeder compartment door. The compartmentalization to be achieved by using metal separators, use of PVC sheet / Hylem sheets shall not be allowed.						
	Main LT Panel shall be form 4b, for form of separation and rest with form 3b ,only metallic covers shall be used, Hylem / PVC sheets shall not be allowed. The panel shall be FRONT operated, suitable for bus duct entry for transformer incomings. Outgoing panels shall be suitable for cable entry from the top/bottom. The type tested design of the Switchboard shall be proven design from the main switchgear manufacturer (OEM). All switchboards shall be supplied by authorized system integrator and design, design warranty, including performance warranty on the switch boards shall be from original equipment (switchgear) manufacturers.						
	Note : ALL the Panels should be SCADA Compatible for Monitoring & Control on Ethernet and should include all accessories as required.Each breaker in Main LT Panel & Emergancey panel shall have Zone Selective Interlocking feature.						
	<b>SOURCE -1 INCOMING FROM ESS LT PANEL</b>						
	1 No. 1600A, 4-pole EDO type ACB having release with following functions :Protection for O/C, S/C, E/F and Metring for Current-I1,I2,I3,In,Iavg,Imax, Voltage- Vph, Vline,Power- KW, KVA, KVAR, Power factor, Maximeters /minimeters Energy –KWh,KVAh, KWArh, Demand current- Ph & Neutral, Demand power-KWh, Under & over frequency, current unbalance, reverse power, phase seq. reversal, Last 10 faults with date and time stamping,Last 10 alarms with date and time stamping, Current and Voltage Harmonics till 31st multiple with Waveform capture. All release data should be available over MODBUS.						
	TNC breaker control switch.						
	ON, OFF, Trip, Ready to close and RYB indication lights with backup MCBs of 2A.						
	96 x 96 sq.mm display module mounted on panel door directly connected from release to display all parameters of ACB/MCCB.						
	<b>SOURCE - 2 INCOMING FROM DG SET (750 KVA)</b>						
	1 No. 1600A, 4-pole EDO type ACB having release with following functions :Protection for O/C, S/C, E/F and Metring for Current-I1,I2,I3,In,Iavg,Imax, Voltage- Vph, Vline,Power- KW, KVA, KVAR, Power factor, Maximeters /minimeters Energy –KWh,KVAh, KWArh, Demand current- Ph & Neutral, Demand power-KWh, Under & over frequency, current unbalance, reverse power, phase seq. reversal, Last 10 faults with date and time stamping,Last 10 alarms with date and time stamping, Current and Voltage Harmonics till 31st multiple with Waveform capture. All release data should be available over MODBUS.						
	TNC breaker control switch.						
	ON, OFF, Trip, Ready to close and RYB indication lights with backup MCBs of 2A.						
	96 x 96 sq.mm display module mounted on panel door directly connected from release to display all parameters of ACB/MCCB.						
	<b>Bus Bar</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Set of 1600 Amps rating TPN copper Bus Bars of suitable length shall be provided for entire length of panel board. Busbar Design suitable for Temperature rise 40 degree over & above ambient temp. of 45 degrees						
	<b>Outgoing Panels</b>						
	All ACB shall have release with following functions :Protection for O/C, S/C, E/F and Metring for RMS values of highest current, Bargraph for % loading, Ammeter, Current- I1,I2,I3, In,Iavg,Imax, Voltage- Vph, Vline, Power- KW,KVA, KVAR, Power factor, Maximeters/minimeters, Energy -KWh, KVAh, KVArh, Demand current- Ph & Neutral, Demand power-KWh. The electrical endurance of ACB shall be 10000 operations upto 1600 AMP ACB and 6000 operation upto 3200 AMP ACB. All release data should be available over MODBUS. All MCCBs shall have Microprocessor release with following inbuilt functions :Protection for O/C, S/C, E/F.						
	<b>Bus Section - A</b>						
	1000 amp, 50KA FP ACB - EDO-----1 Nos.						
	400 amp, 50KA FP MCCB -----1 Nos.						
	200 amp, 36 KA FP MCCB -----2 Nos.						
	100 amp, 36 KA FP MCCB -----2 Nos.						
	<b>Metering &amp; Indication for each outgoing feeders.</b>						
	96 x 96 sq.mm display module mounted on panel door directly connected from release to display all parameters of ACB/MCCB.						
	Set of ON/OFF/Trip/Trip Circuit healthy/ready to close(for ACB) lamp with control MCBs of 2A.						
	<b>Main LT Panel (Incite Block) in ESS (TTA Type) as per specifications and details above complete as required.-</b>	1	set	1382393.00	13823.93	1396216.93	1396216.93
	<b>SUB HEAD-XIV - UPS SYSTEM</b>						
444	Supplying, installation, Testing & Commissioning of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 deg C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swappable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of moduels requird for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction.						
	The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for reliable operation using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design,manufacturing and inspection process should confirm to the relevant International standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect (ITHD) on the input grid shall be < 5% at 50 %load. (The required LC (inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor (PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1 ), however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads.						
	UPS shall be suitable for incoming supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC Output voltage: 3Phase 415 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins, Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part 1 and Part 2, it shall be a Voltage and Frequency Independent (VFI)-type UPS.						
	Communication RS232/RS485/SNMP port open protocol for BMS integration, all hardware & software for IoT Communication as per approved by Engineering in charge. Required battery racks and interconnecting copper conductor cables of suitable size and connectors and all required accoseries are inclusive of the cost). This system must provide a means for logging and alarming of all monitored points plus email notification. Forced air-cooling with integral inbuilt fans with redundancy (if one fan fail UPS should be able to handle at least 80% of the load, Noise Level 65 DB at 1 meter distance. The system shall be in compliance IEC 62040- 1.2 & 3, IS: 16242 and CPWD Specification, Display Panel (minimum) (In-build 5 inch or more LC Display / LED ) to display : a) Input: Voltage, current, Frequency. b) Bypass: Voltage, Frequency. c) Output: Voltage, frequency, Current.						
	d) Battery: Voltage, Capacity, e) Load: KVA, KW, Percentage, f)Temperature: STS, Inverter, PFC. g) Event Logging & Statistical Data (On LCD/LED): UPS should capture and display up to 3000 events like: Over temperature / DC Bus Fail / Fan Fail / Fuse Fail / Overload / Short-circuit / Device Fail / Inverter Fail / Rectifier Fail / Bypass Fail, etc. h) Statistical Data: No. of power failures / Transfers to Bypass / Total Running time, etc. i) Mains Mode of Operation /Battery Mode of Operation / Bypass feeding the load / UPS Fault /Battery charging and discharging, overload, battery voltage and battery capacity. j) Audible Alarms : Mains Failure, Battery Low Alarm, UPS Overload, Fault, Shutdown, Input Over, Under Voltage, Output Over, Under Voltage, Battery Over, Under Voltage, Over Load and short circuit, Over Temperature. The UPS should have QR code which should contain drawing, test report OEM manual,Geo- Tag of manufacturing location etc.						
	30 KVA (Each Power module shall be < 10 KVA)	1	set	428600.00	4286.00	432886.00	432886.00
	200 KVA (Each Power module shall be < 50 KVA)	1	set	2013065.00	20130.65	2033195.65	2033195.65
	<b>SUB HEAD - ESS Shifting</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
445	Providing and erecting XLPE (IS:7098) - BB ISI armoured cable multistrand aluminium conductor for 1.1 KV . To be laid on wall with necessary clamps or in existing trench / pipe of following size of cables.						
	(K) 3 1/2 core 400 Sq.mm ( 185 Sq. mm 1/2 core)	1300.00	RM	1730.00	17.30	1747.30	2271490.00
	<b>END TERMINATIONS OF 1.1KV CABLES</b>						
446	Providing & fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with outgoing tails insulating tape etc. for following size of cables.						
	(J) 3 & 1/2 core 400 Sq. mm	8	each	366.00	3.66	369.66	2957.28
447	Solder less crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly climped with high pressure tool & connected to switchgear terminals with brass / cadmium plated nut bolts in an approved manner.						
	(L) 400 Sq.mm.	32	each	109.00	1.09	110.09	3522.88
	<b>Earthing</b>						
448	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	8	each	12715.00	127.15	12842.15	102737.20
449	Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 SWG.	500.00	kg	77.00	0.77	77.77	38885.00
450	Providing and erecting required size Copper strip for earthing of H.T, OCB/ACB/Transformer LT panel board, motors etc. using copper clamp.	200.00	kg	787.00	7.87	794.87	158974.00
	<b>Sub Head - External Lighting</b>						
451	Supplying & erecting approved make Octagonal pole made from HR Sheet steel. The pole should be made as per IS and shall be coated with hot dip galvanizing as per IS 2629/2633/4759, suitable suspend local wind speed with integral junction box consist of terminal plate of min 6 mm Hylam sheet, standard profile 35mm x 7.5 mm Din-Rail for MCB mounting, stud type terminal and arrangement for cable termination to be erected on foundation as per details given by manufacturer considering site requirement.-(D) 6 Mtr. Long 70 mm Top X 135 mm bottom dia, 3 mm thickness <b>with 200mmX200mmX12mm base plate, 4-M20 Bolts and 600mm long J-Bolt.</b>	10	each	8111.00	81.11	8192.11	81921.10
452	Supplying & erecting approved make Octagonal pole made from HR Sheet steel. The pole should be made as per IS and shall be coated with hot dip galvanizing as per IS 2629/2633/4759, suitable suspend local wind speed with integral junction box consist of terminal plate of min 6 mm Hylam sheet, standard profile 35mm x 7.5 mm Din-Rail for MCB mounting, stud type terminal and arrangement for cable termination to be erected on foundation as per details given by manufacturer considering site requirement.-(H) 9 Mtr. Long 70 mm Top X 155 mm bottom dia, 3 mm thickness <b>with 260mmX260mmX16mm base plate, 4-M24 Bolts and 750mm long J-Bolt.</b>	5	each	15550.00	155.50	15705.50	78527.50
453	Providing 1:2:4 cement concrete foundation & 70 % PCC from bottom including excavation for the pole of size 45 X 45 X 100 cm, deep in below ground level with plinth of 45 cm X 45 cm ( or 45 cm dia X 45 cm ) high upper ground level with necessary curing and finishing in approved manner. ( for 4 & 6 mtr pole)	15	each	801.00	8.01	809.01	12135.15
454	Supplying & erecting approved make SMC press moulded composite FRP loop in, loop out approx 2 mm thick box complete with backelite connector strip 5 way (3P+N+E) DIN rail for mounting mob & hanged doors as per requirement having locking arrangement with mounting clamp with nuts, bolts & washers suitable for erection on pole with cable clamp & earth built of following size of box. including 6A SP MCB 10 KA rating Cat-III).-(g) 250mm X 220mm 135mm (deep)	15	each	2987.00	29.87	3016.87	45253.05
455	Providing and erecting Street Light pole bracket comprising main B Class GI pipe of 4.2 cm/require outside dia. complete with suitable B Class G.I. sleeve tubing of approx. 45cms.length and suitable for 76.5 mm /80mm / required size of pole top having sufficient fasteners for fixing the brackets and having spread of 1.5.mtr. length with 110 deg.with vertical plane & suitable welded stays, reducer and with check nuts complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms. (For 9 Mtr Pole)-[A] Single Arm Bracket 1.5 Mtr	2	each	677.00	6.77	683.77	1367.54
456	Providing and erecting Street Light pole bracket comprising main B Class GI pipe of 4.2 cm/require outside dia. complete with suitable B Class G.I. sleeve tubing of approx. 45cms.length and suitable for 76.5 mm /80mm / required size of pole top having sufficient fasteners for fixing the brackets and having spread of 1.5.mtr. length with 110 deg.with vertical plane & suitable welded stays, reducer and with check nuts complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms. (For 9 Mtr Pole)-[B] Double Arm Bracket 1.5 Mtr	3	each	993.00	9.93	1002.93	3008.79
457	Providing and erecting street light pole bracket comprising main B Class MS pipe of 4.2 cm/require outside dia. complete with suitable B Class M.S. sleeve tubing of approx. 45cms.length and suitable for 76.5 mm / 80mm. / require size pole top having sufficient fasteners for fixing the brackets and having spread of 1 mtr. length with suitable rise as per site condition & suitable welded stiffener reducer and nipple with check nut complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms.-[A] Single Arm Bracket 1 Mtr	8	each	556.00	5.56	561.56	4492.48
458	Providing and erecting street light pole bracket comprising main B Class MS pipe of 4.2 cm/require outside dia. complete with suitable B Class M.S. sleeve tubing of approx. 45cms.length and suitable for 76.5 mm / 80mm. / require size pole top having sufficient fasteners for fixing the brackets and having spread of 1 mtr. length with suitable rise as per site condition & suitable welded stiffener reducer and nipple with check nut complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms.-[B] Double Arm Bracket 1 Mtr	2	each	751.00	7.51	758.51	1517.02

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
459	Street Light (IP-65), surge protection-4 KV integral and 10 KV non Integral, light must have 440 V AC line supply protection. It should withstand 48 hours for 440 v AC line supply.(iii) Above 60 to 90 watts-Cat - III	20	each	5917.00	59.17	5976.17	119523.40
460	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables-(A) 4 core 16 Sq. mm	700.00	metre	152.00	1.52	153.52	107464.00
461	Providing & fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with outgoing tails insulating tape etc. for following size of cables.-(d) 2 to 4 core 16 sq. mm	40	each	47.00	0.47	47.47	1898.80
462	Solder less crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly climped with high pressure tool & connected to switchgear terminals with brass / cadmium plated nut bolts in an approved manner.-(c ) 16/25 sq. mm	160	each	15.00	0.15	15.15	2424.00
463	Providing & laying approved make ISI marked HDPE 6kg/cm2 (Class-3) as per IS:4984:1995 PE-80 to be erected at road crossing on or floor as directed for laying of cable. The pipes as following size of dia & weight per 6mtr.-63 mm dia (OD-63 mm & ID-51 mm nominal) For Fiber & Power cables	1000.00	RM	247.00	2.47	249.47	249470.00
464	Providing & laying RCC Hume pipe for cables to be laid at 90 cm below ground across the road crossing on or floor with necessary material in an approved manner and making the ground as per original.-150 mm dia	20.00	mtr	261.00	2.61	263.61	5272.20
465	Supplying & erecting funnel type earthing having earth plate of following size buried in specifically prepared earth pit 3 mtr. below ground with 40 kg. charcoal and salt with alternate layers of charcoal & salt, 20mm.dia. G.I. pipe with Funnel with a wire mesh for watering & bricks masonry block, C.I. Cover complete as per para 7.3 of IS 3043 with necessary length of double Galvanised Iron / copper earth wire No 6 SWG bolted with lug to the plate and covered in 12 mm dia. G.I. pipe 2.5 mtr long complete connected to the nearest switch gear with end socket as per direction & duly tested by earth tester confirming to IS (As per drawing) with following specification -(B) With 45 x 45 x 0.35 cms. C.I. earth plate	2	each	2543.00	25.43	2568.43	5136.86
466	Providing and erecting Hot deep Galvanized Iron strip wire 8 to 16 SWG.	500.00	kg	77.00	0.77	77.77	38885.00
467	Smart 4G Timer, Supply of IoT based 4G Smart Streetlight Control & Monitoring System having a Smart Panel comprising of 3 Phase IoT Streetlight Smart 4G Timer with 16x2 LCD to display RSSI, relay status, RTC time & diagnostics., Contoller works on 3-phase & also on any available 1-Phase., Contoller with 8-hour battery backup during external power failure. External power failure alert immediately to cloud., 110-630 V AC @ 50-60 Hz – 3 phase operating range., Standby power consumption <3W., Smart 4G Timer with RS232 port for DLMS Energy meter., Smart 4G Timer must be compatible with any make / brand of DLMS (RS232) Energy Meter., DI: 4 Nos. (3 Contactor / Latch detection, 1 for Door Sensor.), DO: 3 Relays for Independent control each phase (R, Y, B) with 1 extra spare relay., Smart 4G Timer with dual SIM functionality for connectivity backup., 4G M2M SIM 3-Year communication included., Local configuration via WiFi / BLE for maintenance or during force majeure., GPS chip inbuilt of Smart 4G Timer for auto location tracking & astronomic schedule location., 50 programmable schedules., Astronomic scheduling with monthly offsets., Smart 4G Timer has inbuilt timer stores schedules locally & also stores schedule execution logs locally, syncs to cloud whenever connected to cloud., Auto-scheduler overrides manual operations., Monitoring & alerts for MCB trips., Over/under voltage, current, overload, power factor & short circuit protections with alerts via Dashboard, App, SMS, WhatsApp & Email., Contactor / Latch chattering protection & alerts., Smart 4G Timer with neutral failure protection and alert., Built-in Watchdog for anti-jamming., Smart 4G Timer must send Regular "heartbeat" on software for CCMS status.,						
	Accelerometer for tamper & panel movement detection & alerts., Smart 4G Timer must be tested from an NABL Lab for Surge Test @ 6 KV (IEC 61000-4-5), ESD Test @ 4 KV (IEC 61000-4-2), EFT @ 2 KV (IEC 61000-4-4), Conducted Emission @ 150 KHz-30 MHz (CISPR11), Damp Heat Test (40 Deg C @ 95% RH) 2 cycles of 12+12 hours (IS: 9000 (Part 5/Sec.2):1981 latest) with all test passing criteria as "Temporary degradation or loss of function or performance which is self-recoverable",. FOTA functionality required for upgrades., Smart 4G Timer sends & stores online/offline data of controller & load for lamp burn hours analysis.,						
	It stores & syncs connectivity logs for configuration of network connections & analytics., PANEL & SWITCHGEAR, The panel includes a Class 1 DLMS energy meter NABL approved with 1-2 months of stored data of daily, hourly, monthly, load survey, instantaneous, events, tamper data & with power events stored in meter memory for audit purpose., Must monitor V, I, KWH, KVA, PF, KVAH, etc., Panel made with 2 mm CRCA sheet with ground mountable stand complete with gland plate, waterproof glands, earthing bolt., IP55, weatherproof panel with RAL7035 powder-coated., Smart 4G Timer must be fitted on removable terminal sockets for easy maintenance., Switchgear includes 3 Nos. 3 pole Contactor / Latch having minimum 50 A Load carrying capacity per phase, all other switchgear & wires: 40 A load carrying capacity., 1 Nos. 4P MCB 10 kA for Incomer & 6 Nos. 1P MCBs 10 kA for Outgoing., Phase-Wise Bypass MCBs required., 4P RCCB 100 mA., door sensor. Also, provide lock & key facility., Panel mount outdoor antenna for GSM, GPS., Canopy design for draining down water., CCMS SMART SOFTWARE, OAuth 2.0 APIs for sending data to Government clouds/software, etc., CCMS Web dashboard with secure password & OTP login., Hosted on trusted cloud, data security, antivirus & attack protection., HTTPS., AES256-bit encryption., Vulnerability Assessment and Penetration Testing (VAPT) certificate for CCMS Software.,						
	Streetlight management software for load status, live analytics & reports., Energy meter data tables (kW, kWh, PF, I, V, etc.) available., Utility monthly bill reconciliation & Class 1 accuracy reports for billing, energy monitoring & auditing for streetlight load., Fault detection., Light fault 99% analysis on dashboard using energy monitoring., WhatsApp integration., Hierarchy-wise reporting & alerts., GIS mapping of live connected streetlight control panels, poles & streetlights., MQTT protocol., Smartphone app with local configuration & navigation., Monitoring & reporting of lighting parameters., Facility for media attachments for site photos/videos/work permits/checklists, etc. per Feeder Panel for remote verification., Asset management module for streetlight infrastructure data., Complaint/service task management with history & escalation must be available., Android & iOS App for dashboard analytics, graphs, energy data, alerts., 3 Years CCMS Web Software & Cloud Server Hosting subscription included., Customizable, user-friendly dashboard.,	1	each	99433.00	994.33	100427.33	100427.33
	<b>Total of Sub Head-XV</b>						<b>135160880.54</b>
	<b>SUB HEAD 'A' - EQUIPMENTS</b>						
	<b>Water Chilling Unit</b>						
	<b>Water Cooled SCREW Chiller</b>	52					

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
468	Supplying, Installation, Testing and Commissioning of following capacity floor-mounted VFD (Variable Frequency Drive) Operated water cooled screw-type chiller machine complete with single/multi semi-hermatic mono/multi screw type compressor, with independent circuits, water-cooled Shell & Tube type condenser, Shell & Tube horizontal flooded type evaporator with carbon steel shell and seamless copper tubes with 19 mm nitrile rubber insulation i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, common base frame, interconnected copper refrigerant piping and wiring, vibration Isolators, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-free refrigerant gas R- 134A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 psig and hydraulically tested at 1.5 times of design pressure . A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date. BEE Star labeling and CPWD Specification as amended upto date and tested as per IS 16590.						
	Chilled water Leaving Temp. (6.67 0C)						
	Chilled water Entering Temp. (12.2 0C)						
	Evaporator fouling factor = 0.018 m <sup>2</sup> . 0C/kW						
	Condenser water Entering Temp. (32.2 0C)						
	Condenser water Leaving Temp. (36.4 0C)						
	Suitable for Seismic Zone and Altitude as per location/site.						
	Microprocessor based controller.						
	Minimum COP at AHRI Conditions = 6.7 min.						
	IKW/TR at Full Load = 0.64 max.						
	NPLV at design conditions not exceeding 0.32 IKW/TR						
	IPLV at AHRI conditions not exceeding 0.32 IKW/TR						
	Manufacturer's <b>AHRI Certified Selection Performance Sheet</b> to be submitted to evaluate and verify the specified performance parameters						
	Supply, Installation, testing & commissioning of water chilling m/c including transit insurance, transportation, loading & unloading, lifting & shifting etc.						
	Chiller should be tested on the load - 100 % / 75% / 50% / 25 % / 15% @ 68 deg F						
	Capacity : 390 TR Actual (2 # Working 1 # Standby) BEE 4 Star Rating	3	Nos.	5567084.75	55670.85	5622755.60	16868267.00
	<b>Chiller Plant Optimization</b>						
469	BMS Machine: Intel Quad Core processor (Latest Technology), Windows® 2010 SP2 or above operating System, 1 TB HDD, 8 GB RAM, Enhanced graphic Card, DVD Combo Drive, Ethernet Port with 32" color monitor flat screen LED display, multimedia keyboard & optical mouse and microsoft office 2013 and anti virus as per Specification.	1	Nos.	159149.00	1591.49	160740.49	160740.00
470	Chiller Plant Optimizer(CPO) should have algorithm to match the real time demand load with the chiller maximum COP operating condition. CPO should be capable of operating VFD's to maintain optimal water flow on evaporator and condenser side of the chiller. It should also optimize the machine run time and the machine sequencing/scheduling to get the best system efficiency. It should also generate alarms in case of abnormal operating range. CPO should be complete with software, enclosure/Panel. Note- CPM shall not be accepted.	1	Nos.	2859543.00	28595.43	2888138.43	2888138.00
	<b>Field Devices</b>				0.00	0.00	
471	Immersion temp sensor	45	Nos.	3491.00	34.91	3525.91	158666.00
472	Outside T+r	4	Nos.	15401.00	154.01	15555.01	62220.00
473	Water Pressure transmitter	1	Nos.	9241.00	92.41	9333.41	9333.00
474	Water Level Switch	1	Nos.	8728.00	87.28	8815.28	8815.00
	<b>Cables</b>				0.00	0.00	
475	2 x 1 sq.mm Copper Shielded unarmoured cable for signal and power as per specification. (for I/O points hard wired to DDC).	350	Nos.	113.00	1.13	114.13	39946.00
476	25 mm thick PVC conduit.	450	Nos.	123.00	1.23	124.23	55904.00
477	CAT 6 A unarmoured cables with required accessories like RJ45 connector etc.	100	Nos.	118.00	1.18	119.18	11918.00
478	3 x 1.5 sq.mm Shielded unarmoured cable for signal and power as per specification. (power Cable).	400	Nos.	179.00	1.79	180.79	72316.00
	<b>Pumps</b>						
	<b>Primary Chilled Water Pumps</b>						
479	Supply, Installation, Testing and Commissioning of vertical inline Split coupled chilled water circulating pump set capable of delivering water against a head of 12 meters complete with motor, as per specifications and drawings.						
	1 No. Vertical Inline Long Coupled type pump						
	1 No. suitable HP, TEFC squirrel cage induction motor with class "F" insulation, 1450 rpm synchronous speed, operating on 415 ±10% volt, 3 phase, 50 hz A.C supply.Suitable for outdoor application.						
	2 Nos. 200 mm dia. Dial type pressure gauges (range-0-5 kg/cm <sup>2</sup> )						
	Duly insulated with 40 kg/cum density close cell elastomeric Nitrile rubber insulation. cladded with aluminium sheets of 0.5mm thickness and properly clamped to pump in two semicircular sections as per specifications.						
	Minimum Required Efficiency of Pump-70 %						
	M.O.C of Impeller- BRONZE						
	The pumps shall be provided with cast iron suction guides and Triple Duty Valve (PN-16) factory fitted						
	1 No. -Vertical Inline split coupled type single stage pump with bronze impellar, S.S Shaft, CI body and outside fitted balanced mechanical seal and Pump casing should be PN 16 rated.						
	Chilled water 3557LPM at 12 M head (2 # Working 1 # Standby)	3	Nos.	259989.00	2599.89	262588.89	787767.00
	<b>Secondary Chilled water pumps</b>						
480	Supply, Installation, Testing and Commissioning of vertical inline Split coupled chilled water circulating pump set capable of delivering water against a head of 25 meters complete with motor, VFD shall be motor mounted with (IP-55) protection for Sensorless Control and VFD shows flow and head on its display all the time and separate Pump Logic controller etc.as per specifications and drawings.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Variable Pumps must be provided with a cloud-based subscription service that enables Active Performance Management. It must proactively tracks and manages pump performance and provides early diagnostic messaging, web accessible trends and analysis along with automated reports helping end customer to make performance-based decisions and take immediate action to deliver the best possible HVAC pump performance.The cloud based subscription should deliver real-time alerts, such as:						
	1) Alarms & warnings on excessive vibration,						
	2) Pump in hand,						
	3) Dead head,						
	4) Cavitation						
	5) BrokenCoupling						
	6) VFDandMotorOverheating The connectivity kit supplied by OEM/authorized representative should have ability to connect and provide real time data for upto 8 pumps in a single plant room.						
	The pumps shall be provided with cast iron suction guides and Triple Duty Valve (PN-16) factory fitted						
	1 No. -Vertical Inline split coupled type single stage pump with bronze impellar, S.S Shaft, CI body and outside fitted balanced mechanical seal and Pump casing should be PN 16 rated.						
	Duly insulated with 40 kg/cum density close cell elatromeric Nitrile rubber insulation. cladded with aluminium sheets of 0.5mm thickness and properly clamped to pump in two semicircular sections as per specifications.						
	Chilled water 3557 LPM at 25 M head (2 # Working 1 # Standby)	3	Nos.	542133.00	5421.33	547554.33	1642663.00
	<b>Condenser Water Pumps</b>						
481	Supply, Installation, Testing and Commissioning of vertical inline Split coupled condenser water circulating pump set capable of delivering water against a head of 30 meters complete with motor, VFD shall be motor mounted with (IP-55) protection for Sensorless Control and VFD shows flow and head on its display all the time and separate Pump Logic controller etc.as per specifications and drawings.						
	Variable Pumps must be provided with a cloud-based subscription service that enables Active Performance Management. It must proactively tracks and manages pump performance and provides early diagnostic messaging, web accessible trends and analysis along with automated reports helping end customer to make performance-based decisions and take immediate action to deliver the best possible HVAC pump performance.The cloud based subscription should deliver real-time alerts, such as:						
	1) Alarms & warnings on excessive vibration,						
	2) Pump in hand,						
	3) Dead head,						
	4) Cavitation						
	5) BrokenCoupling						
	6) VFDandMotorOverheating The connectivity kit supplied by OEM/authorized representative should have ability to connect and provide real time data for upto 8 pumps in a single plant room.						
	The pumps shall be provided with cast iron suction guides and Triple Duty Valve (PN-16) factory fitted						
	1 No. -Vertical Inline split coupled type single stage pump with bronze impellar, S.S Shaft, CI body and outside fitted balanced mechanical seal and Pump casing should be PN 16 rated.						
	Duly insulated with 40 kg/cum density close cell elatromeric Nitrile rubber insulation. cladded with aluminium sheets of 0.5mm thickness and properly clamped to pump in two semicircular sections as per specifications.						
	The pump characteristic shall be as follows:						
	Chilled water 5632 LPM at 30 M head (1 standby) (2 # Working 1 # Standby)	3	Nos.	724571.00	7245.71	731816.71	2195450.00
	<b>FRP Cooling Tower</b>						
482	Supply, installation, testing and commissioning of CTI Approved FRP cooling tower of 14,36,400 Kcal/hr heat rejection capacity with FRP water basin, PVC fillings with integral louvers and drift eliminators complete with hot water basin either fitted with spray nozzles or having self rotating sprinklers, statically and dynamically balanced axial flow fan direct driven or driven through speed reduction gear box with TEFC induction motor, suction screen, make up- quick fill arrangement, over flow and drain pipe connections with valves and suitable inspection ladder, access arrangement for cooling tower interier, cement concrete foundation, steel/masonary supporting structure, anti vibration mountings etc. as per specifications and as required. 2 coats of coating STARCOAT FRP Required.						
	475 TR capacity @ 25.6 Deg.C Wb (Ambient) (2 # Working)						
	Flow Rate : 5632 LPM						
	Motor (18 KW x 2 Fan)						
	Cooling Tower 'IN' Temp. : 36.4°C						
	Cooling Tower 'OUT' Temp.: 32.2°C	2	Nos.	1164161.86	11641.62	1175803.48	2351607.00
	<b>Air - Dirt Separator</b>						
483	Supply installation testing and commisioning of Deaerator-dirt separator. Flanged connections, complete with Brass drain valve 1" F (from DN 50 to DN 150), 2" F (from DN 200 to DN 300). complete with a set of concentric metal mesh surfaces to create the swirling motion required to facilitate the release of micro-bubbles and dirt to the surfaces. Epoxy resin coated steel body. Brass automatic air vent valve body. Stainless steel internal element. PP float. Brass float guide and stem. Stainless steel float lever and spring. EPDM hydraulic seals. Medium water and non-hazardous glycol solutions excluded from the guidelines of EC directive 67/548; maximum percentage of glycol 50%. Maximum working pressure 10 bar. Working temperature range 0–110°C. Particle separation rating down to 5µ. Working temperature range 0–100°C. Floor brackets as per site requirement. Third Party test report is required to be submit by contractor from manufacturer for 5µ Particle separation (TNO)						
	Dia-450 (Closed Loop)	1	Nos.	853993.00	8539.93	862532.93	862533.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
484	Supplying, installing, testing, and commissioning Automatic Tube Cleaning System for water-cooled chiller condenser/evaporator, complete with cleaning balls, injection and collection units, control panel, piping, valves, electrical works, BMS interface, accessories, and documentation, as per specifications and directions of Engineer-in-Charge	1	Nos.	2972192.00	29721.92	3001913.92	3001914.00
	<b>Hot Water Generator (Winter heating)</b>						
485	Supply, installation, testing and commissioning of electrically operated Hot Water Generator of efficiency more than 90% of capacity 150 KW in multiple bank complete with PLC based microprocessor controls, electrical panels, stainless steel braided pipe flexible connector etc. conforming to tender specifications section. (1W+1S)						
	Hot water 'In' : 55 °C Hot water 'Out' : 65 °C 150 KW , 570 LPM	2	Nos.	231022.00	2310.22	233332.22	466664.00
	<b>Hot water pump for hot water generator (Winter heating)</b>						
486	Supply,erection, testing and commissioning of vertical Inline chilled water pump for hot water recirculation, pump set capable of delivering 150 USGPM of water against 30 mtr head each comprising of the following and complete as required						
	1 No. - Vertical Inline split coupled type pump with bronze impellar and outside fitted mechanical seal. Duly insulated with 32 kg/cum density close cell cross linked cladded with aluminium sheets of 0.5mm thickness and properly clamped to pump in two semicircular sections as per specifications. Note: One set of pump shall be used as stand by.						
	1 No. Suitable HP, TEFC squirrel cage induction motor (IE2) with class 'F' insulation, 3000 RPM synchronous speed, operating on 415 Volts ± 10 % , 3 phase ,50 Hz A.C. supply.	3	Nos.	112550.00	1125.50	113675.50	341027.00
	<b>SUB HEAD 'B' - EQUIPMENTS</b>						
	<b>Air Handling Unit</b>						
	<b>Ceiling/Floor mounted suspended</b>						
	Supplying, installing, testing and commissioning of factory built Ceiling/Floor mounted double skin type air handling units Eurovent Certified made of 40 mm thick panels consisting of pre plasticized G.I casing made of thickness 0.6 mm outside layer and G.I sheet of thickness 0.6 mm inside layer with polyurethane foam (PUF) insulation of density 42 kg/m3 factory injected between them by injection moulding machine, complete with Direct Driven Backward Curved Aerofoil Plug Type Fans with VFD's with aluminium finned copper tubes (tubes thickness not less than 0.5 mm),filter sections with 50 mm thick washable synthetic type pre filter having efficiency 90% down to 10 micron, with AHU dampers (manual control) for SA/RA/ FA in mixing box, Direct Drive package with TEFC (EFF-1) suitable for VFD operation at 415 ± 10% volts, 50 Hz, 3 phase, A.C supply, mixing box ,drain connections with drain valve, stainless steel drain pan, necessary vibration isolation arrangement etc. TP isolator with MS enclosure box should be Provided. etc, complete as per specifications of following						
487	CS-AHU, 1000 CFM (2.5 TR), 2.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	2	Nos.	46286.00	462.86	46748.86	93498.00
488	CS-AHU, 2000 CFM (5.0 TR), 4.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	5	Nos.	92571.00	925.71	93496.71	467484.00
489	CS-AHU, 2500 CFM (6.25 TR), 5.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	6	Nos.	115713.00	1157.13	116870.13	701221.00
490	FM-AHU, 3000 CFM (7.5 TR), 6.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	10	Nos.	138856.00	1388.56	140244.56	1402446.00
491	CS-AHU, 3000 CFM (7.5 TR), 6.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	11	Nos.	138856.00	1388.56	140244.56	1542690.00
492	CS-AHU, 3500 CFM (8.75 TR), 7.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	3	Nos.	161999.00	1619.99	163618.99	490857.00
493	CS-AHU, 4000 CFM (8.75 TR), 7.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	7	Nos.	185141.00	1851.41	186992.41	1308947.00
494	FM-AHU, 4000 CFM (8.75 TR), 7.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	3	Nos.	185141.00	1851.41	186992.41	560977.00
495	CS-AHU, 4500 CFM ( 11.25 TR), 9.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	2	Nos.	208284.00	2082.84	210366.84	420734.00
496	FM-AHU, 5500 CFM (13.75 TR), 11.0 Sqft. Coil Area, 35 mm static pressure. 4 row for summer cooling.	3	Nos.	254569.00	2545.69	257114.69	771344.00
497	FM-AHU, 6000 CFM (15.0 TR), 12.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	5	Nos.	277712.00	2777.12	280489.12	1402446.00
498	FM-AHU, 7000 CFM (17.5 TR), 14.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	1	Nos.	323997.00	3239.97	327236.97	327237.00
499	FM-AHU, 8000 CFM (20.0TR), 16.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	4	Nos.	370282.00	3702.82	373984.82	1495939.00
500	FM-AHU, 9000 CFM (22.5TR), 18.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	2	Nos.	416567.00	4165.67	420732.67	841465.00
501	FM-AHU, 10500 CFM (26.25TR), 21.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	4	Nos.	485995.00	4859.95	490854.95	1963420.00
502	FM-AHU, 12000 CFM (30.0 TR), 24.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	1	Nos.	555423.00	5554.23	560977.23	560977.00
503	FM-AHU, 13000 CFM (32.5TR), 26.0 Sqft. Coil Area, 35 mm static pressure. 6 row for summer cooling.	1	Nos.	601708.00	6017.08	607725.08	607725.00
504	25000 CFM (62.5 TR), 50 Sqft. Coil Area, 65 mm static pressure. 6 row for summer cooling.	1	Nos.	1157130.00	11571.30	1168701.30	1168701.00
	<b>AHU's Controls/Dynamic Balancing Valves</b>						
	Supply, Installation, Testing and Commissioning of following sizes electronic, self-balancing, pressure independent type dynamic balancing valve with integrated 2 way modulating control valve in a single body. The actuator shall be capable of accepting upto 10V DC and upto 20mA electric signal and shall provide similar transduced feedback output to control system. Maximum close off pressure shall not be less than 6 Bar for upto 50 mm valves and 7 Bar for 65 mm & above. Valves should have pressure rating of 25 Bar minimum.						
505	Water flow rate 3.8-7.2 USGPM, 25 MM	2	Nos.	14264.41	142.64	14407.05	28814.00
a	Water flow rate 7.4-14.4 USGPM, 32 MM	5	Nos.	15165.25	151.65	15316.90	76585.00
b	Water flow rate 14.6-21.6 USGPM, 40 MM	40	Nos.	28164.41	281.64	28446.05	1137842.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
506	Water flow rate 21.8-40.8 USGPM, 50 MM	10	Nos.	30873.73	308.74	31182.47	311825.00
a	Water flow rate 41.62.4 USGPM, 65 MM	7	Nos.	47663.56	476.64	48140.20	336981.00
b	Water flow rate 62.64-120 USGPM, 80 MM	6	Nos.	60662.71	606.63	61269.34	367616.00
507	Water flow rate 120.2-252 USGPM, 100 MM	1	Nos.	102555.08	1025.55	103580.63	103581.00
	<b>Modulating Thermostats</b>	71	Nos.	3115.00	31.15	3146.15	223377.00
	<b>Chilled water Cassette Units.</b>						
	Supply, installation, testing and commissioning of Chilled water Cassette type indoor units with compact cooling coil, multispeed fan motor, the blower shall be dynamically balanced and designed for silent operation, the filters shall be washable synthetic media type arranged for convenient cleaning and replacement and inbuilt drain pump. The units as specified in Schedule of Quantities shall be factory fitted with valve package comprising of 2 way pressure independent valve suitable for variable CHW flow with modulating actuator, ball with Y strainer valve at inlet & Ball valve at outlet and necessary piping connections. The actuator of modulating valve shall be provided with interface cards to receive 0-10V or 4-20 mA signal from Minxon Digital Thermostat. The unit is supplied with cordless remote controller of approved as per specifications						
508	1.5 TR capacity (600 CFM)- Cassette Unit	13	Nos.	12212.71	122.13	12334.84	160353.00
509	2.0 TR capacity (800 CFM)- Cassette Unit	11	Nos.	14274.58	142.75	14417.33	158591.00
510	4.0 TR capacity (1600 CFM)- Cassette Unit	8	Nos.	39675.42	396.75	40072.17	320577.00
511	1.0 TR capacity (400 CFM)- One way Cassette Unit	11	Nos.	29417.00	294.17	29711.17	326823.00
512	1.5 TR capacity (600 CFM)- One way Cassette Unit	60	Nos.	33429.00	334.29	33763.29	2025797.00
513	2.0 TR capacity (800 CFM)- One way Cassette Unit	6	Nos.	36926.00	369.26	37295.26	223772.00
	<b>Fan Coil Units.</b>						
	Supply, installation, testing and commissioning of ceiling suspended Normal static type FCU's each complete with 3 row deep cooling coil of copper tubes aluminium fins construction, centrifugal fan, 3 speed motor, with modulating thermostat, factory fitted complete valve station (it includes ball valve with Strainer, ball valve without strainer, 2 way motorized valve, gauges etc.) ,filters insulated drain pan which covers the valve station completely, coil piping connections, condensate drain connection, complete as required complete with manual air vent valve, SP isolator with MS enclosure box should be Provided etc. as required as per specification & drawings with the following capacities:-						
514	2.0 TR capacity (800 CFM)	4	Nos.	15543.22	155.43	15698.65	62795.00
515	3.0 TR capacity (1200 CFM)	2	Nos.	19588.14	195.88	19784.02	39568.00
	<b>UVGI (Ultra Violet Germicidal Irradiation) SYSTEM</b>						
	Supply, Installation , testing , commissioning and handing over of the imported Ultra Violet Germicidal Irradiations ( UVGI) (AHU Coil) System for maintaining indoor Air Quality. The System can be UL listed for fire safety. The components of the system must be in strict conformity with the specifications. and shall be including freight from Delhi Airport to site ,Insurance,Lifting,Shifting etc.as required . The prices to include all inter connected wiring between the UVGI Lamps.						
516	3000 CFM- 25000 CFM	35	Nos.	236569.00	2365.69	238934.69	8362714.00
	<b>AIR CURTAIN</b>						
517	Supply,Installation, testing & commissioning of Air Curtain for isolation of Air conditioned area from air cooled area.	4	Nos.	23246.00	232.46	23478.46	93914.00
	<b>SUB HEAD 'C' - PIPING WORKS</b>						
	<b>Plumbing (Chilled Pipe)</b>						
	Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping inside the building (with necessary clamps, vibration isolators and fittings but excluding valves, strainers, gauges etc.) duly insulated with following closed cell elastomeric nitrile rubber of minimum 45 Kg / cu m density, thermal conductivity 0.037 W/MK or better at 20 deg mean temperature class 'O' insulation applied by suitable adhesive complete including repairing of damage to building etc. as per specifications and as required complete in all respect.						
	Note:- The Pipes of sizes 150mm & below shall be M.S. 'C' class as per IS:1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS:3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350mm dia. and from minimum 7mm thick MS sheet for pipes of 400mm dia and above.						
	Insulation Thickness Range						
	1. DIA 25 -32 MM - 19 MM						
	2. DIA 40 -400 MM -32 MM						
518	300 MM	80.00	RM	9120.34	91.20	9211.54	736923.00
519	250 MM	80.00	RM	7768.64	77.69	7846.33	627706.00
520	200 MM	80.00	RM	6327.97	63.28	6391.25	511300.00
521	150 MM	100.00	RM	4312.71	43.13	4355.84	435584.00
522	125 MM	80.00	RM	3776.27	37.76	3814.03	305122.00
523	100 MM	180.00	RM	3013.56	30.14	3043.70	547866.00
524	80 MM	200.00	RM	2250.85	22.51	2273.36	454672.00
525	65 MM	150.00	RM	1812.71	18.13	1830.84	274626.00
526	50 MM	120.00	RM	1575.42	15.75	1591.17	190940.00
527	40 MM	250.00	RM	1279.66	12.80	1292.46	323115.00
528	32 MM	90.00	RM	1119.49	11.19	1130.68	101761.00
529	25 MM	60.00	RM	940.68	9.41	950.09	57005.00
	Supplying, fixing, testing and commissioning of following PN-10 Rating valves, strainers, gauges in the chilled water plumbing duly insulated to the same specification as the connected piping and adequately supported as per specifications.						
	<b>Butterfly Valves</b>						
	BUTTERFLY VALVE (MANUAL) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating for chilled water/hot eater circulation as specified						
530	200 MM	18	Nos.	14311.02	143.11	14454.13	260174.00
531	150 MM	5	Nos.	7857.63	78.58	7936.21	39681.00
532	100 MM	2	Nos.	6340.68	63.41	6404.09	12808.00
533	80 MM	12	Nos.	4592.37	45.92	4638.29	55659.00
534	65 MM	14	Nos.	4310.17	43.10	4353.27	60946.00
535	50 MM	20	Nos.	3921.19	39.21	3960.40	79208.00
536	40 MM	80	Nos.	3310.17	33.10	3343.27	267462.00
	<b>Motorized Butterfly Valves</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Supplying, fixing, testing and commissioning of following sizes Motorized Butter fly Valve with CI Body, SS Disc,O - ring and minimum PN-16 pressure rating , conforming to BS 5155, IS 13095, with IP-55 actuator, capable of accepting upto 10V DC , and upto 20mA electric signal and providing similar transduced feedback output to control system as required.						
537	200 MM	8	Nos.	48978.81	489.79	49468.60	395749.00
	<b>Balancing Valves</b>						
	BALANCING VALVE WITH BUILT IN MEASURING FACILITY with C I body flanged construction with EPDM coated disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled / hot water circulation as specified.						
538	200 MM	9	Nos.	89481.00	894.81	90375.81	813382.00
	<b>Non-Return Valves</b>						
	NON - RETURN VALVE with duel plate of CI body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified.						
539	200 MM	6	Nos.	22254.00	222.54	22476.54	134859.00
	<b>Suction Guide</b>						
	Providing and fixing of suction guide of following sizes in the inlet of chilled water pumps as per specifications						
540	200 MM	6	Nos.	59078.00	590.78	59668.78	358013.00
	<b>Y - Strainers</b>						
	Y - STRAINER of Ductile CI Body flanged ends with stainless steel strainer for chilled / hot water circulation including insulation as specified.						
541	200 MM	6	Nos.	44446.61	444.47	44891.08	269346.00
542	100 MM	1	Nos.	13388.14	133.88	13522.02	13522.00
543	80 MM	6	Nos.	9034.75	90.35	9125.10	54751.00
544	65 MM	8	Nos.	7325.42	73.25	7398.67	59189.00
545	50 MM	9	Nos.	5473.73	54.74	5528.47	49756.00
546	40 MM	40	Nos.	4098.31	40.98	4139.29	165572.00
	<b>Ball valve with strainer</b>						
547	32 MM	5	Nos.	2680.00	26.80	2706.80	13534.00
548	25 MM	2	Nos.	2041.00	20.41	2061.41	4123.00
	<b>Ball valve without strainer</b>						
549	32 MM	5	Nos.	1474.00	14.74	1488.74	7444.00
550	25 MM	2	Nos.	974.00	9.74	983.74	1967.00
	<b>Pressure Gauges</b>						
551	Providing and fixing pressure gauge with gauge cock, thermowell, complete as per specifications and drawings.	142	Nos.	1263.56	12.64	1276.20	181220.00
	<b>Thermometers with thermowell</b>						
552	Providing and fixing thermometer Mercury filled V form type complete as per specifications and drawings.	142	Nos.	959.32	9.59	968.91	137585.00
	<b>Flow Switches</b>						
553	Providing and fixing water flow switch on chilled water outlet complete as per specifications and drawings.	6	Nos.	1141.00	11.41	1152.41	6914.00
	<b>Automatic Air Vents</b>						
554	Providing and fixing auto airvent purging valve complete as per specification and drawings.	10	Nos.	1621.00	16.21	1637.21	16372.00
	<b>Thermowell of 15 mm dia.(Test Point)</b>						
555	Providing and fixing thermowell on chilled water pipe complete as per specifications and drawings.	10	Nos.	689.00	6.89	695.89	6959.00
	<b>Condenser Water Piping</b>						
	Supplying, fixing, testing and commissioning of condenser water pipes of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends,tees etc.but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted/buried in ground excavation and refilling etc( Paracoat BPC coating for Buried Pipeline). as per specification and as required complete in all respect. Note:-The Pipes size 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipe size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. And from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.						
556	350 MM	80	Nos.	10062.71	100.63	10163.34	813067.00
557	250 MM	60	Nos.	6792.37	67.92	6860.29	411617.00
	<b>Butterfly Valves</b>						
	BUTTERFLY VALVE (MANUAL) with C I body SS disc nitrile sheet & O - ring & PN 16 pressure rating as specified.						
558	250 MM	6	Nos.	20305.00	203.05	20508.05	123048.00
	<b>Motorized Butterfly Valves</b>						
	Supplying, fixing, testing and commissioning of following sizes Motorized Butter fly Valve with CI Body, SS Disc,O - ring and minimum PN-16 pressure rating , conforming to BS 5155, IS 13095, with IP-55 actuator, capable of accepting upto 10V DC , and upto 20mA electric signal and providing similar transduced feedback output to control system as required.						
559	250 MM	3	Nos.	64034.75	640.35	64675.10	194025.00
	<b>Balancing Valves</b>						
	BALANCING VALVE WITH BUILT IN MEASURING FACILITY with C I body flanged construction with EPDM coated disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled / hot water circulation as specified.						
560	250 MM	3	Nos.	89481.00	894.81	90375.81	271127.00
	<b>Non-Return Valves</b>						
	NON - RETURN VALVE with duel plate of CI body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified.						
561	250 MM	3	Nos.	22254.00	222.54	22476.54	67430.00
	<b>Suction Guide</b>						
	Providing and fixing of suction guide of following sizes in the inlet of condense water pumps as per specifications and drawings.						
562	250 MM	3	Nos.	59078.00	590.78	59668.78	179006.00
	<b>POT Strainer</b>						
	Providing and fixing of pot strainer in the condenser water pipe as per specifications and drawings.						
563	250 MM	1	Nos.	475582.00	4755.82	480337.82	480338.00
	<b>Pressure Gauges</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
564	Providing and fixing pressure gauge with gauge cock, thermowell, complete as per specifications and drawings.	6	Nos.	1263.56	12.64	1276.20	7657.00
	<b>Thermometers with thermowell</b>						
565	Providing and fixing thermometer Mercury filled V form type complete as per specifications and drawings.	6	Nos.	959.32	9.59	968.91	5813.00
	<b>Flow Switches</b>						
566	Providing and fixing water flow switch on chilled water outlet complete as per specifications and drawings.	2	Nos.	1141.00	11.41	1152.41	2305.00
	<b>Thermowell (Test Point)</b>						
567	Providing and fixing thermowell on chilled water pipe complete as per specifications and drawings.	1	Nos.	689.00	6.89	695.89	696.00
	<b>On-line non-chemical water treatment system</b>						
568	Supply, Installation, Testing and Commissioning of On line, Non-Chemical Water Treatment Scale Preventor System : "Scale Guard / Caliphi" for 390 TR AC Chiller, having flow rate 3557 LPM	3	Nos.	551301.00	5513.01	556814.01	1670442.00
	<b>Expansion tank</b>						
569	Supply, installation, testing, balancing and commissioning of PRESSURISED CHILLED WATER EXPANSION TANK along with necessary accessories such as air vents, Safety Valves, Pressurisation pumps and its panel , with required Support & Foundation etc. in order to keep chilled water system under pressure and to prevent entrapment of air in the system. The tank shall be precharged M.S expansion tank with replaceable heavy duty butyl rubber bladder. The tank shall have 20 mm drain and charging valve connection to facilitate the onsite charging of the tank to meet system requirement. The tank shall be fabricated as per Indian standard code for "non-fired pressure vessels" and the flanges shall be as per IS 6392-1971. For chilled/hot water application, it will be insulated with 50mm thick insulation to the specifications and clad with STARBOND 30-36, Anti-Fungal, Fire retardant insulation protective coating, tested as per ASTM D 4804, ASTM E 84, ASTM D-5035-11, ASTM D 1777-64 and ASTM D 3776-09, finally finished with 2 layers of Insulation protective coating to provide complete seal against air and moisture/resistance against mechanical impact, scratch, weather resistance with the properties of mold, fungus and bacterial resistance. The coating surface flame spread should be 0 and smoke developed should be also 0, coating should also comply with NFPA 90A & 90B-25/50 for parameter and the VOC level of the coating should comply with LEED IEQ 4.2 i.e. VOC level should be below than 50 gram/liter and it should also comply the guidelines of MIA 3316C- Class 1 & Grade A.						
	Supplying, fixing, testing and commissioning of condenser water pipes of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends,tees etc.but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted/buried in ground excavation and refilling etc( Paracoat BPC coating for Buried Pipeline). as per specification and as required complete in all respect. Note:-The Pipes size 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. And from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.						
	1500 LTRS	1	No.	440114.00	4401.14	444515.14	444515.00
	<b>Drain Piping</b>						
570	G. I. drain piping of 'B' Class complete with fittings, supports, valves and 2 layers of 6 mm thick Polyethylene Foam (Kinney Foam) insulation as per specifications and drawings.						
	Providing and fixing pipes with all necessary fittings, supports and insulation.						
A	50 mm dia	80.00	Rm	388.00	3.88	391.88	31350.00
B	40 mm dia	180.00	Rm	282.00	2.82	284.82	51268.00
C	32 mm dia	150.00	Rm	227.00	2.27	229.27	34391.00
571	Supplying, installing, testing, and commissioning automatic water softening plant for cooling tower make-up water, complete with softener vessel, resin, control valve, brine tank, piping, bypass, electrical panel, accessories, and documentation, as per specifications and Engineer-in-Charge instructions.	1	SET	1049845.00	10498.45	1060343.45	1060343.00
	<b>SUB HEAD 'D' AIR DISTRIBUTION</b>						
	<b>Ducting</b>						
	Supplying, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/ round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports, bends, transitions, reducers, end caps, collars etc as required complete in all respect in confirmation to IS : 655 and approved drawings and specifications of following sheet thickness complete as required.						
	<b>G.I. Sheet Metal Ducting (Rectangular)- FACTORY FABRICATED</b>						
572	0.63 mm (24 Ga)	11000.00	Sqm	1009.32	10.09	1019.41	11213510.00
573	0.80 mm (22 G)	900.00	Sqm	1179.66	11.80	1191.46	1072314.00
574	1.0 mm ( 20 G)	400.00	Sqm.	1261.02	12.61	1273.63	509452.00
	<b>G.I. Sheet Metal Ducting (Rectangular)- SITE FABRICATED</b>						
	Supplying, installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/ round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports, bends, transitions, reducers, end caps, collars etc as required complete in all respect in confirmation with IS : 655 and approved drawings and specifications of following sheet thickness complete as required						
575	0.63 mm (24 Ga)	1050.00	Sqm	1027.97	10.28	1038.25	1090163.00
576	0.80 mm (22 G)	850.00	Sqm	1199.15	11.99	1211.14	1029469.00
577	1.0 mm ( 20 G)	120.00	Sqm.	1568.64	15.69	1584.33	190120.00
	<b>G.I. Sheet Metal Ducting (Spiral/Oval)</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	Supply, fabrication, installation and testing of G.S.S. factory fabricated insulated spiral duct made in two layers with insulation sandwiched in between two layers, finished with silver powder coat. The ducting shall comply with the latest IS / SMACNA standard and complete with splitter, damper, vanes etc as required complying with standard specifications and as per approved shop drawings. The insulation used shall be of closed cell, Fire retardant, self extinguishing type cross linked polyethylene insulation of 25 mm thick, density not less than 24 Kg/cu.m, 'K' value not more than 0.028 Kcal/degC with adhesive tape etc. Duct shall be supplied as per size given below.						
578	0.63 mm (24 Ga)	500.00	Sqm	2195.00	21.95	2216.95	1108475.00
579	0.8 mm (22 Ga)	200.00	Sqm	2557.00	25.57	2582.57	516514.00
580	1.0 mm (20 Ga)	50.00	Sqm	2871.00	28.71	2899.71	144986.00
	<b>Aluminium Sheet Metal Ducting</b>						
	Supply, installation, balancing and commissioning of factory fabricated Aluminium sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as specifications of following sheet thickness complete as required.						
581	Thickness 1.00mm Sheet	50.00	Sqm	1845.00	18.45	1863.45	93173.00
582	Thickness 0.80mm Sheet	200.00	Sqm	1422.00	14.22	1436.22	287244.00
	<b>FRP Ducting</b>						
	Providing, fabricating, supplying, and installing PPGL & FRP circular duct system for fume hood and general laboratory exhaust air, complete as per specification and drawings. The ducting shall consist of an inner layer of Pre-Painted Galvanized Iron (PPGL) and an outer layer of Fiberglass Reinforced Plastic (FRP) for corrosion resistance and chemical protection. Technical Specifications: 1) Type : Double-layer composite circular duct (PPGL + FRP) 2) Inner Layer: PPGL sheet of minimum 2.0 mm thickness (zinc coating 120 g/m <sup>2</sup> with epoxy-based paint finish) 3) Outer Layer: FRP coating of 3.0 mm thickness, UV-resistant, reinforced with chopped strand mat (450 GSM) using polyester resin suitable for laboratory exhaust application 4) Diameter: As per design and approved drawings 5) Jointing: Flanged and gasketed joints using FRP-coated MS flanges, neoprene gasket, and stainless steel bolts/nuts 6) Support System: Heavy-duty MS angle iron supports at intervals not exceeding 2.4 m c/c, painted with epoxy primer and finish coat 7) Accessories: Elbows, reducers, tees, dampers, flexible connections, and other fittings as required 8) Testing: Ducts shall be inspected for air leakage, proper alignment, and coating uniformity before commissioning 9) Standard: Fabrication and installation shall comply with SMACNA / IS 655 / ASHRAE guidelines All materials, labor, fabrication, transportation, erection, painting, jointing, FRP coating, testing, and commissioning complete in all respects.	50.00	Sqm	3408.00	34.08	3442.08	172104.00
	<b>Duct Acoustic Lining</b>						
584	Supply and fixing of acoustic lining of supply air duct and plenum with 25 mm thick resin bonded glass wool having density of 32 kg/m <sup>3</sup> , with 25 mm X 25 mm GI section of 1.25 mm thick, at 600 mm centre to centre covered with Reinforced Plastic tissue paper and 0.5 mm thick perforated aluminium sheet fixed to inside surface of ducts with cadmium plated nuts, bolts, stick pins, CPRX compound etc. complete as required and as per specifications.						
	25 MM thick(for indoor ducts)	600.00	Sqm.	754.24	7.54	761.78	457068.00
585	Supplying, fixing acoustic lining on wall and ceiling of AHU rooms with 50mm thick, density 32 kg/cu.m resin bonded glass fiber insulation friction fixed in 610mm x 610 mm frame work made of 25X50X50X50X25 mm made out of 0.6mm thick GI sheet U shaped channel and covered with reinforced fiber glass tissue and finished with 0.80 mm perforated aluminium sheet etc. complete as required and as per specifications.						
	50 MM thick(for AHU ROOM)	550.00	Sqm.	895.76	8.96	904.72	497596.00
	<b>Underdeck Insulation</b>						
586	Supply of Underdeck insulation of Crosslinked Closed cell Polyethylene FR XPE Thermal insulation having density of 30± 3 Kg/ M <sup>3</sup> , having K value 0.0314 W/m ° K at 23°C Deg temp and temp range of -40°C to +115°C and fire rating Class O as per BS 476 Part 6 from Exova Warringtonfire-UK and CBRI,Roorkee as per the approved specifications. Material shall be HCFC/CFE free as per US EPA 5021 A (2014 )						
	25mm thick insulation FR XPE laminated with aluminium foil	900.00	Sqm.	1120.00	11.20	1131.20	1018080.00
	<b>Duct Insulation</b>						
587	Supply, installation, testing & commissioning of Closed cell, Fire retardant (Class "O") , self extinguishing type cross linked polyethylene insulation density not less than 24 Kg/sqM, 'K' value not more than 0.028 Kcal/degC with adhesive tape etc. on ducts complete as per specification and drawings. All insulation is to be adhered to the duct surface uniformly and no air bubbles are allowed anywhere.						
	10 mm	2000.00	Sqm.	576.00	5.76	581.76	1163520.00
	25 mm	500.00	Sqm.	1120.00	11.20	1131.20	565600.00
	<b>Grilles/Diffusers</b>						
	Supply, installation, testing and commissioning supply and return air grilles/ diffusers as per specifications and drawings including fixing frame of G.I./wooden in false ceiling/walls.						
588	Aluminium supply air grilles with volume control	35.00	Sqm.	8155.08	81.55	8236.63	288282.00
589	Aluminium Return air grilles without volume control	50.00	Sqm	5326.27	53.26	5379.53	268977.00
590	Duct Volume Control dampers	20.00	Sqm	6423.73	64.24	6487.97	129759.00
591	Aluminium S/A Square diffuser with volume control damper damper with anti smudge ring & removable core	35.00	Sqm	10882.20	108.82	10991.02	384686.00
592	Aluminium R/A square diffuser without volume control damper with anti smudge ring & removable core	50.00	Sqm	7283.90	72.84	7356.74	367837.00
593	Aluminium Exhaust air diffuser with damper	15.00	Sqm	10882.20	108.82	10991.02	164865.00
594	Fresh/Exhaust air Louvers with VCD,Bird screen/wire mesh etc.	20.00	Sqm	10183.00	101.83	10284.83	205697.00
	<b>Flexible Duct Connection</b>				0.00	0.00	
595	Supply, installation, testing and commissioning of fire retardant nonporous double layer flexible canvass connection between each indoor unit and ducting.	170	Nos.	2469.00	24.69	2493.69	423927.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	<b>Fire Damper</b>						
	Supplying, Fixing, testing and commissioning of fire dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring, the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications.						
596	Supply air fire damper	20.00	Sqm.	15573.73	155.74	15729.47	314589.00
597	Return air fire damper	20.00	Sqm.	15573.73	155.74	15729.47	314589.00
598	Spring return actuator with panel of Motorised actuator for Dampers	20	Nos.	8299.15	82.99	8382.14	167643.00
	<b>SUB HEAD 'E' VENTILATION WORKS</b>						
	<b>Inline Fans</b>						
	Supplying, Installing, Testing and Commissioning of Inline fans complete with motor, supporting frame, gravity louvres, etc. as per drawings and specifications.						
599	100 CFM @ 12 mm static	3	Nos.	3360.00	33.60	3393.60	10181.00
600	400 CFM @ 12 mm static	7	Nos.	6403.00	64.03	6467.03	45269.00
601	600 CFM @ 12 mm static	3	Nos.	8332.00	83.32	8415.32	25246.00
602	550 CFM @ 12 mm static	4	Nos.	7818.00	78.18	7896.18	31585.00
603	700 CFM @ 12 mm static	4	Nos.	9772.00	97.72	9869.72	39479.00
604	1300 CFM @ 12 mm static	6	Nos.	18103.00	181.03	18284.03	109704.00
	<b>Propeller Fans</b>						
	Supplying, Installing, Testing and Commissioning of propeller fans complete with motor, supporting frame, gravity louvres, etc. as per drawings and specifications.						
	<b>MEDICAL COLLEGE WING - 6</b>						
605	225 mm dia. @ 8 mm wg	8	Nos.	3703.00	37.03	3740.03	29920.00
	<b>Ventilation Fans</b>						
	Supplying, installation, testing and commissioning of supply air <b>Tube Axial flow fan</b> with 20 mmWC Static Pressure of following capacity with GSS casing and aluminium alloy impellers with high efficiency aero-foil sections, blades, the impeller directly driven by TEFC induction motor (motor should be of high efficiency (efficiency 1) suitable for 3 Phase 50 Hz 415 V ± 10 %, 1400 RPM of class 'F' insulation etc. complete as required and as per specifications. TP isolator with MS enclosure box should be Provided.						
606	6000 CFM @ 20 mm wg	3	Nos.	49577.00	495.77	50072.77	150218.00
607	5500 CFM @ 20 mm wg	3	Nos.	48086.00	480.86	48566.86	145701.00
	<b>Pressurization Fans</b>						
	Supplying, installation, testing and commissioning of <b>Tube Axial flow fan</b> suitable for outdoor application of following capacity with GSS casing and aluminium alloy impellers with high efficiency (efficiency-2) aero-foil sections, blades, the impeller directly driven by TEFC induction motor, suitable for 3 Phase 50 Hz 415 V ± 10 %, 1400 RPM of class 'F' insulation etc. complete as required and as per specifications (20 mm Static Pressure WC) (For Pressurization of lift lobby, lift well, stairwell). TP isolator with MS enclosure box should be Provided.						
608	11000 CFM @ 35 mm wg for pressurization of Lift Lobby	1	Nos.	98742.00	987.42	99729.42	99729.00
609	14500 CFM @ 20 mm wg for pressurization of Lift Well	4	Nos.	116228.00	1162.28	117390.28	469561.00
610	12000 CFM @ 20 mm wg for pressurization of stair case	2	Nos.	107999.00	1079.99	109078.99	218158.00
611	11000 CFM @ 20 mm wg for pressurization of stair case	1	Nos.	98742.00	987.42	99729.42	99729.00
	<b>Fire rated coating for Duct</b>						
612	All insulated chilled water duct insulation shall be coated with STARBOND 30-36 Anti-Fungal insulation protective coating in conjunction with 7mil non-combustible certified Parafab GFC woven fiber glass cloth, tested as per BS 476 part Ignitability 5, Fire Propagation 6, ASTM D 4804, ASTM E 84, ASTM D-5035-11, ASTM D 1777-64 and ASTM D 3776-09, finally finished with 2 layers of Insulation protective coating to provide complete seal against air and moisture/resistance against mechanical impact, scratch, weather resistance with the properties of mold, fungus and bacterial resistance, coating should also comply with NFPA 90A & 90B- 25/50 for parameter and the VOC level of the coating should comply with LEED IEQ 4.2 i.e. VOC level should be below than 50 gram/litter and it should also comply the guidelines of BS standard- Class 0. (For Indoor & Outdoor Duct Application of Airconditioning)	350.00	Kg	127.00	1.27	128.27	44895.00
613	<b>Fire Rated Paint</b> : Supplying, Application & Commissioning for fire rated paint (Starcoat CRC) CBRI approved and tested for 2 hours as per BS 476 part 6, 7, 20 & 24 duct Vertical & Horizontal for Kitchen Extraction Duct, Car Parking Duct, Duct Crossing Fire compartment, Ventilation Duct along with all the necessary accessories (Sealant-Chemxseal 32-17 & Class O Gasket) etc. Details shall be as per tender specifications.	1100.00	Kg	978.00	9.78	987.78	1086558.00
	<b>SUB HEAD 'F' - ELECTRICAL WORKS</b>						
	<b>Electrical Control Panel</b>						
	<b>Plant Room AC PANEL- Main Panel</b>						
	Supplying, assembling, erecting, connecting, testing and commissioning of dust, damp and vermin proof free floor standing factory built sheet steel enclosed non-drawout modular type Panel fabricated out of suitable sized angle iron and flats, base channel and covered with 2.0mm thick PCRC sheet, duly painted complete with earth bus, aluminium bus bar, numbering & sign writing, interconnection & including the cost of connection through bus bar / copper conductor flexible connection with all accessories, rotary handles, phase barriers etc. complete as shown in drawing & as per specifications and mounted with the followings etc. complete as required. (All the starters should have NO/ NC contacts for remote/ fire control facility etc. complete)						
	<b>Incoming:</b>						
	2 Nos 1000 A, 415V, 50 KA 4P, electrical draw out type, Micro-processor based release (for over current and Earth fault protections) A.C.B. with all indications, metering, protections, push buttons etc. complete in all respects as mentioned in specifications and as required with following accessories:						
	Digital flush type class- I accuracy with power load manager, showing V, A, KVA, KWH etc. with 3 Nos. current transformers of 2000/5A ratio, 10 VA Class 1.0 metering.						
	1 Set of RYB phase indicating & ON/OFF/TRIP LED lamps with 2Amps. SP MCB's backup.						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
	<b>Bus coupler:</b>						
	1 set, 1500 A, 415V, 50 KA 4 Pole, electrical draw out type, A.C.B. with all indications, push buttons etc. complete in all respects as mentioned in specifications and as required with ON/OFF/TRIP indications. Arrangement to be considered as required to couple with existing panel.						
	Interlocking to be considered as required.						
	<b>Bus Bars:</b>						
	Electrolytic high conductivity aluminium three phase and neutral busbars rated at 415V, 50 Hz., 1500 amps. insulated with heat shrinkable coloured PVC sleeves & clip on shrouds for joints.						
	<b>Outgoing:-</b>						
	All outgoing feeders shall be provided with On indicating lamp with 2 A SP MCB protection & resin cast CT's class-1 suitable rating with digital Amps. meter.						
	630A TPN MCCB '35 KA' with TM release etc. with MFM showing V,A, KWH, KVA & ON/OFF/Trip indications, complete - 3 set (for chillers) ( 2 WORKING:1 STAND BY)						
	40A TPN MCB '25 KA' with TM release etc. complete - 3 set (Primary pumps) ( Spare for future)						
	63A TPN MCCB '25 KA' with TM release etc. complete - 4 set (Secondary pumps) ( Spare for future)						
	100A TPN MCCB '25 KA' with TM release etc. complete - 3 set (Condensor Pump) ( Spare for future)						
	80A TPN MCCB '25 KA' with TM release etc. complete - 2 set (cooling tower) ( Spare for future)						
	63A TPN MCCB '25 KA' with TM release etc. complete - 3 set (hot water pump) ( Spare for future)						
	150A TPN MCCB '25 KA' with TM release etc. complete - 2 set (hot water generator) ( Spare for future)						
	Fully automatic Star Delta starter suitable for 1 nos. of 15.0 KW motor including suitable MPCB type-2 selection, CT's, Ammeter, Push Buttons, LED Indications, Auto/ Manual/ OFF selector switch, SPPR, FRLS copper control wiring etc. Complete for each - 3 Set (PRIMARY Pumps)						
	Fully automatic star delta starter suitable for 22.0 KW motor including suitable MPCB type-2 selection, CT's, Ammeter, Push Buttons, LED Indications, Auto/ Manual/ OFF selector switch, SPPR, FRLS copper control wiring etc. Complete - 3 Set (Secondary pumps)						
	Fully automatic star delta starter suitable for 45.0 KW motor including suitable MPCB type-2 selection, CT's, Ammeter, Push Buttons, LED Indications, Auto/ Manual/ OFF selector switch, SPPR, FRLS copper control wiring etc. Complete - 3 Set (Condensory pumps)						
	Fully automatic star delta starter suitable for 9.3 KW motor including suitable MPCB type-2 selection, CT's, Ammeter, Push Buttons, LED Indications, Auto/ Manual/ OFF selector switch, SPPR, FRLS copper control wiring etc. Complete - 3 Set (Hot water pumps)						
614	Fully automatic star delta starter suitable for 2 nos. of 15 KW motor including suitable MPCB type-2 selection, CT's, Ammeter, Push Buttons, LED Indications, Auto/ Manual/ OFF selector switch, SPPR, FRLS copper control wiring etc. Complete for each - 2 Set (Cooling tower)	1	Lot	919891.00	9198.91	929089.91	929090.00
	<b>Sub Panel</b>						
	Supplying, installation, testing and commissioning of MV panel board of cubical type, compartmentalised design fabricated from 2.0 mm thick CRCA sheet having necessary cable alleys, powder coated through seven-tank process facility for pricking and degreasing, including connections and inter connections as per specifications complete with following accessories as required( supply panels in each AHU room).						
	(Note: Power supply up to the each sub panel shall be in the scope of client/other agencies)						
615	<b>Panel - P2 (AHU)</b>						
	<b>OUTGOING</b>						
	1 No. 16 Amps MCB 10 KA for 0.5-1.5 KW motor						
	1 No. DOL Starter						
	1 No. single phase preventer MPRD-2 type						
	1 No. ammeter						
	2 Nos indicating lights						
	2 Nos. Push buttons	34	Sets	11020.00	110.20	11130.20	378427.00
616	<b>Panel - P3 (AHU)</b>						
	<b>OUTGOING</b>						
	1 No. 25 Amps MCB 10 KA for 2.0-5.5 KW motor						
	1 No. DOL Starter						
	1 No. single phase preventer MPRD-2 type						
	1 No. ammeter						
	2 Nos indicating lights						
	2 Nos. Push buttons	34	Sets	17139.00	171.39	17310.39	588553.00
617	<b>Panel - P4 (AHU)</b>						
	<b>OUTGOING</b>						
	1 No. 32 Amps MCB 10 KA for 7.5-11.0 KW motor						
	1 No. Star Delta Starter						
	1 No. single phase preventer MPRD-2 type						
	1 No. ammeter						
	2 Nos indicating lights						
	2 Nos. Push buttons	3	Sets	22989.00	229.89	23218.89	69657.00
618	<b>Panel - P5 (Axial Fan)</b>						
	<b>OUTGOING</b>						
	1 No. 25 Amps MCB 10 KA for 2.5 KW motor						
	1 No. Star Delta Starter						
	1 No. single phase preventer MPRD-2 type						
	1 No. ammeter						
	2 Nos indicating lights						
	2 Nos. Push buttons	10	Sets	17918.00	179.18	18097.18	180972.00
619	<b>Panel - P6 (PRESS.)</b>						
	<b>OUTGOING</b>						
	1 No. 25 Amps MCB 10 KA for 3.7 KW motor						
	1 No. DOL Starter						
	1 No. single phase preventer MPRD-2 type						
	1 No. ammeter						
	2 Nos indicating lights						
	2 Nos. Push buttons	8	Sets	17918.00	179.18	18097.18	144777.00
	<b>Electrical cable</b>						

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
620	Providing and fixing PVC insulated armoured aluminium conductor cables (3 1/2 Core) & COPPER CABLE (4 CORE) from main panel boards to various equipments through walls/ceiling with appropriate clamps and fixing arrangements, termination etc. as per specifications and drawings.						
	3 1/2 Core - 250 mm2	100.00	RM	5005.00	50.05	5055.05	505505.00
	3 1/2 Core - 185 mm2	250.00	RM	3239.00	32.39	3271.39	817848.00
	3 1/2 Core - 150 mm2	80.00	RM	2559.00	25.59	2584.59	206767.00
	3 1/2 Core - 120 mm2	60.00	RM	2159.00	21.59	2180.59	130835.00
	4 Core - 35 mm2 - COPPER	20.00	RM	6079.00	60.79	6139.79	122796.00
	4 Core - 25 mm2 - COPPER	40.00	RM	4481.00	44.81	4525.81	181032.00
	4 core - 16 mm2 - COPPER	35.00	RM	2874.00	28.74	2902.74	101596.00
	4 core - 10 mm2 - COPPER	80.00	RM	1865.00	18.65	1883.65	150692.00
	4 core - 6 mm2 - COPPER	600.00	RM	1152.00	11.52	1163.52	698112.00
	4 core - 4 mm2 - COPPER	900.00	RM	814.00	8.14	822.14	739926.00
	4 core - 2.5 mm2 - COPPER	50.00	RM	567.00	5.67	572.67	28634.00
	<b>Cable Tray</b>						
621	Fabricating and installing perforated MS cable trays including horizontal and vertical bends, reducers, tees cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting etc. as required.						
	100 mm x 50 mm x 1.6 mm	280.00	Rm	1119.00	11.19	1130.19	316453.00
	300 mm x 62.5 mm x 1.6 mm	200.00	Rm	1604.00	16.04	1620.04	324008.00
	<b>Earthing</b>						
622	Providing and fixing 25 mm x 5 mm G.I. strip on surface or in recess for earth connection etc. complete as required.	800.00	Mtr.	286.00	2.86	288.86	231088.00
623	Providing and fixing 6 SWG dia GI wire on surgance or in recess for loop earthing alongwith the existing surface/ recessed conduit/ submain wiring/ cable as required.	800.00	Mtr.	185.00	1.85	186.85	149480.00
	<b>Total HVAC Work</b>		<b>Total</b>				<b>110119194.00</b>
	<b>INTEGRATED BUILDING MANAGEMENT SYSTEM</b>						
	<b>CENTRAL CONTROL STATIONS</b>						
624	Supply, Installation, Testing & Commissioning of Building Management System (BMS). BMS shall be complete as per point schedule suitable to monitor, operate & control the total air conditioning system as well as other systems from a central location Computer. The system shall be complete with all accessories including Server Computer, System/ Network Controller, DDC, Graphics Software, sensors, actuators, network & electronic components, transformers, relays & associated cabling, conduiting, control wiring, Enclosures etc. as required to make the system operative and functional.						
a	<b>BMS Workstation</b> - Supply, installation, testing and commissioning PC i7 Intel Processor, 2.93 Ghz or better, 8GB RAM (Expandable), 1TB HDD, 2GB NVIDIA graphic card, CD/DVD R/RW Drive & 32" inch TFT colour monitor, laser printer, cordless key board, mouse, Windows 10 operating system, etc. all complete	1	No	130000.00	1300.00	131300.00	131300.00
b	UPS 6KV for DDC Panel	1	No	32500.00	325.00	32825.00	32825.00
	<b>SOFTWARE</b>						
625	Web Based Graphical interface software. The system should be accessible from anywhere on LAN or WAN or Ethernet without additional licenses. The Communication protocol shall be one of the Industry Standard Open Protocols such as BACNet, LON etc. System should be scalable and software should be integrable with Access Control, CCTV VMS seamlessly to generate a holistic view. Software shall have 3 simultaneous user license.	1	Set	162500.00	1625.00	164125.00	164125.00
	Third Party Integartion: UL & BTL listed Gateway / Open Protocol Software for integrating the foll third party system communicating on one of the Standard Open Protocols such as BACNet , MODBUS, M-Bus, J Bus etc - Vendor to consider required No. of Integrators for qty's mentioned in IO summary. Integrator/Gateway/supervisory controller shall be of the same OEM as field controllers & software.						
	<b>CONTROLLERS</b>						
626	SITC of Standalone BTL & UL listed BACNet I/P field DDC controller having universal input/ output ports. Controller shall have 2 10/100 ethernet port & can communicate in Star, Daisy chain, RSTP topology & offer path redundancy for communication. DDC controller shall be DHCP enabled to ensure VPN network .						
	All DDC Controllers shall be provided with hinged doors with locking facility. Apart from the controllers, the enclosers shall house the terminal blocks, load relays and associaetd equipment. The internal wiring in the enclosure shall be factory wired. The packaging shall be such that complete installation of the field equipment and field wiring can be done prior to the installation of the electronics.						
	The controller shall be independent in operation and the failure of any other device / controller or the operator workstations, shall not cause any disruption to the function of the rest of the system. The DDC controllers shall have the facility to implement user modifiable time schedules as daily, weekly, monthly annual temporary schedules.						
	DDC to meet data point summary requirement.	1	Lot	3500000.00	35000.00	3535000.00	3535000.00
	<b>SENSORS &amp; FIELD DEVICES</b>						
	<b>SENSORS &amp; FIELD DEVICES</b>						
627	Supply, installation, testing & commissioning of the following Sensors :						
a	Immersion type Temperature Sensor	142	Nos	2500.00	25.00	2525.00	358550.00
b	Differential Pressure switch AHU air filter	71	Nos	1209.00	12.09	1221.09	86697.00

S.No.	Description	Qty	Unit	Rate excl GST	1% L Cess	Rate with LCess excl GST	Amount
c	DP Switch Air/Blower	134	Nos	975.00	9.75	984.75	131957.00
d	Pressure Sensor	4	Nos	3900.00	39.00	3939.00	15756.00
e	CO sensor	8	Nos	4550.00	45.50	4595.50	36764.00
f	1 Point Level switch	6	Nos	1625.00	16.25	1641.25	9848.00
g	Temp. Sensor	80	Nos.	3500.00	35.00	3535.00	282800.00
<b>CABLING &amp; CONDUITING</b>							
<b>CABLING &amp; CONDUITING</b>							
628	Supply, Installation, Testing & Commissioning of the following cables as per the specifications:						
a	2 Cr x 1 Sq.mm FRLS Shielded Cable for Field Devices	800.00	RM	48.75	0.49	49.24	39392.00
b	3 Cr x 1.5 Sq.mm FRLS Cable	900.00	RM	61.75	0.62	62.37	56133.00
c	4 Cr x 1 Sq.mm. FRLS Shielded. Cable for Field Devices	4000.00	RM	71.50	0.72	72.22	288880.00
d	CAT 6 FRLS Cable for Communication	1000.00	RM	58.50	0.59	59.09	59090.00
e	25mm GI conduit	8000.00	RM	71.50	0.72	72.22	577760.00
f	25 mm flexible conduit	6000.00	RM	65.00	0.65	65.65	393900.00
<b>Total BMS Work</b>			<b>Total</b>				<b>6200777.00</b>